Montana Outdoors

May/June 2004

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Why Montana is wild about
TROUT

Charged up over
WATERFALLS

GOODBYE GRAYLING?
The heated debate over how to save Montana's coolest fish

A CUTT ABOVE
Catching native trout in high-mountain lakes

Montana Fish, Wildlife & Parks

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GEORGE LANE/*THE INDEPENDENT RECORD*

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COVER PHOTO: *A wild brown trout is held briefly before release into a Montana stream. See page 34 to learn why Montana has been wild about river trout for the past three decades. Photo by Denver Bryan.*

OPPOSITE PAGE: *Happy hikers explore Montana's Beartooth Wilderness, near Cooke City. Photo by Tim Egan.*

Not-so-ancient processes

My compliments on the March/April 2004 issue. I read it cover to cover and enjoyed the diverse and well-written articles.

However, the ending of "Montana's Avian Spectacle" struck me as odd when it said the "reappearance of snow geese and other water birds . . . says that many of the world's ancient and most complex natural processes are still very much in order."

The Freezout ecosystem is not a result of "natural processes," as was clearly articulated in the beginning of the article. It is a result of diverting irrigation water out of the Sun River, manipulating the water levels through man-made dikes and ponds, and then channeling that water into the Teton River. I think you missed an opportunity at the end of the article to show or emphasize the benefits of resource management to animals and fish as well as humans.

Beverly A. Yelczyn
Missoula

More calendars please

Thank you for doing such a good job on the 2004 Montana's Uncommon Critters Calendar (November/December, 2003). I only hope you keep it up next year and every year. I'm sure you'll never run out of wildlife

for each month. Also, many thanks for all the good stories and pictures. Everything in your magazine is tops.

Elliott Winters
Osage, Minnesota

Hoping to visit Freezout

We enjoy every issue of *Montana Outdoors*, but two articles in the March/April issue especially grabbed our attention, the one on Freezout Lake and the one featuring Mr. Hollopeter ("Tough Love").

My husband was raised on the Fairfield Bench and has seen the snow geese on Freezout Lake. I was raised in Helena and lived on the Hi-Line for 12 years, but I've never seen the Freezout migration event. That's almost shameful to admit. I still hope to see the snow geese and their feathered neighbors someday—perhaps this year.

We have relatives who remind me of Mr. Hollopeter, who sounds like a delightful and knowledgeable gentleman. We enjoyed Brian Marotz's article and its conversational style.

We are so blessed to live here in Montana. Thank you Fish, Wildlife & Parks for working to preserve and restore this wonderful environment.

Shirley Rorvik
Kalispell

Down with reintroductions

I find myself agreeing with Roxy Hollopeter. Poisoning out lakes and river drainages that your predecessors spent good tax money to cultivate doesn't make a lot of sense, but neither does reintroducing grizzlies and wolves into cattle country. I have long felt that the U.S. Fish and Wildlife Service and the state clones went off the deep end years ago. If these idealists believed dinosaurs could survive today, we would have a Jurassic Park or two.

Craig Marshall
Arizona

To heck with natives

The issue of "saving the westslope cutthroat trout" ("Tough Love") bugs me. How many people even know what a westslope cutthroat looks like? I'm 80-plus years old and have asked a number of my avid fisherman friends, and they don't know what the westslope cutthroat is.

I think you would do well to keep the rainbow, brown, and brook trout populations thriving, and to heck with the "native" stuff, which means little or nothing to most of us.

Ron VanSice
Butte

Harder sell

I read the article on poisoning the rainbows in the Big Salmon drainage ("Tough Love") with interest. I worked for Montana FWP for 30 years, most of that time as chief pilot. In the early 1960s, we got permission from the U.S. Forest Service to survey high mountain lakes in wilderness areas from the department's helicopter. In 1963, we found rainbows in several lakes in the Big Salmon drainage. I tried my best to convince the Fisheries Division in Helena to poison out those lakes so the rainbows wouldn't interbreed with the cutthroats, but I was unsuccessful.

It would have been relatively easy to do then, as we had unlimited access to those lakes with our helicopter.

Now the department is considering what we wanted to do 40 years ago, but with the attitude of some of the wilderness advocates, it will be a much harder sell.

Cliff Higgins
Helena

Not nearly extinct

I found "Death by Garbage" (March/April) to be very interesting. But the last paragraph, in which it says grizzlies are "in danger of extinction," is wrong. Canada and Alaska have always had plenty of grizzlies. Certainly it's okay to have some grizzly bears in Montana, but to say they are endangered is incorrect. That's just the old ploy of repeating something long enough until people eventually believe it.

Gary W. Sutherland
Brodhead, Wisconsin

■ We welcome your comments, questions, and letters to the editor. We'll edit letters as needed for accuracy, style, and length. Mail your letter to: *Montana Outdoors*, P.O. Box 200701, Helena, MT 59620-0701. Or e-mail us at: tdickson@state.mt.us.

TOM DICKSON

Years later, Jennifer would recall it was the camo tux that marked the beginning of the end for her and Ryan.

Q. *Is it true that Fort Peck Reservoir has more miles of shoreline than the California coast?*

A. It's hard to believe, but the reservoir, with its hundreds of arms and points, has nearly twice as many shoreline miles as California's Pacific coastline: 1,520 miles (U.S. Army Corps of Engineers) versus 840 (World Atlas USA). Fort Peck is also the largest hydraulically filled (water and sediments pumped from the river bottom to form the dam structure) dam in the United States.

Q. *Is it possible to visit the site of the Mann Gulch Fire, made famous by Norman Maclean's* Young Men and Fire*?*

A. Yes. The gulch, where in 1940 thirteen smoke jumpers died in a forest fire, is a small canyon running through the Gates of the Mountains Wilderness, 20 miles north of Helena. You can get there by Missouri River tour boat, which runs daily during the summer, or by hiking in across the wilderness area. A small monument marks the site where the firefighters perished.

Q. *How do you tell the difference between a walleye and a sauger?*

A. It's not always easy, because they are both members of the perch family, often live in the same reservoirs and rivers, and look almost identical with their long body and glassy eyes. To tell them apart, look at the tail. The lower tip of the walleye's is white, while the sauger's is not. Also, the sauger's first dorsal fin has dark spots, but the walleye's doesn't.

Walleyes, which are not native to Montana, are generally larger than sauger, averaging roughly 16 inches and running up to 33 inches. The native sauger averages about 13 inches and runs up to 28 inches.

The state records are 16.63 pounds and 8.81 pounds respectively, both from Fort Peck Reservoir.

? *Wonder about some part of Montana's natural world? E-mail us at: tdickson@state.mt.us*

ILLUSTRATIONS BY JEFF TOOBEY

OUR POINT OF VIEW

JEFF HAGENER | *Director of Montana Fish, Wildlife & Parks*

We're working to delist grizzlies and wolves

I'M OFTEN ASKED ABOUT Montana FWP's stance regarding gray wolves and grizzly bears. Our position is that the recoveries of wolves in the western recovery area and grizzly bears in the Greater Yellowstone Ecosystem have been successful. In 1993, there were 45 wolves in the recovery area, all in northwestern Montana. Now more than 750 wolves live in Idaho, Montana, and Wyoming. There are today more than 400 grizzlies in the Greater Yellowstone Ecosystem and an estimated 300 or more in Glacier National Park, which makes up one-quarter of the species's range within the Northern Continental Divide Ecosystem (NCDE).

Montana Fish, Wildlife & Parks

These success stories are due in part to protection from the Endangered Species Act. But just as important has been cooperation among citizens, ranchers, and hunters, as well as among federal agencies, state agencies, and Indian tribes.

The recovery of grizzly bears and gray wolves shows what the nation can do, as a whole, to ensure the long-term survival of species that once had nearly disappeared. As part of this national effort, Montana and other western states provide the habitat necessary for the survival of wolves and grizzlies, such as the wild areas of the Rocky Mountain Front. Western state wildlife agencies also have the scientific expertise, as well as credibility with local citizens, necessary to maintain these wildlife populations.

What we don't have, however, is funding for adequate population monitoring, conflict response, law enforcement, public education, and other essential aspects of grizzly bear and gray wolf management. Wolf and grizzly conservation is expensive, and it has the potential to overwhelm our state budgets.

That's why we believe that all Americans who benefit from the restoration of gray wolves and grizzlies should expect to contribute to the cost of their management. Not only is that fair, but it's also the only way to ensure the long-term local support vital to the sustainability of these two species.

We're working hard to get grizzlies and gray wolves delisted. For NCDE grizzlies to be removed from federally threatened status, we need data showing the population is healthy and increasing. Because grizzlies are hard to count, we've begun a study using scent stations that snag the hair of inquisitive bears. By examining DNA in the captured hair follicles, scientists can distinguish individual bears and thus estimate the local bear population.

As for gray wolves, our state management plan has been lauded by the U.S. Fish and Wildlife Service. Unfortunately, that agency says it can't remove gray wolves from federal protection because of the plan put forth by Wyoming, which is linked to Montana and Idaho when it comes to wolf management.

Montana is doing all it can to delist wolves and bears. If we can get them off the list, that will be great news both for those who want to see more local control and those who support the long-term conservation of these great species.

M. Jeff Hagener

Leave those kids alone

Fawns, fledglings, baby rabbits, and other young wildlife seemingly abandoned by their parents each spring are usually not orphans, say Montana FWP biologists.

"In most instances, people do more harm than good trying to 'rescue' baby wild animals," says Mike Thompson, wildlife biologist in Missoula.

Thompson says wildlife parents often leave their young temporarily to forage for food, but rarely do they part for long.

"Deer does and elk cows, for example, need to leave periodically to graze and build up energy for nursing," he says.

Biologists say that usually the mother is nearby and will return when the danger (you) has left.

"If you move a baby animal, that makes it harder for the mother to find it, and she may not accept it after being handled," notes Thompson.

"Adopting" a baby wild animal can be tempting, but it's not a good idea. All wild animals, even small ones, can scratch or bite. And babies quickly grow up to be adults. The cuddly raccoon you found in June will be destroying the kitchen by September. Also, human-reared wild animals usually have difficulty returning to the wild. They either die because they lack survival skills or become nuisances by hanging around places where people live or camp.

Another reason not to pick up young wildlife is that state law forbids it. "It's illegal to possess wild animals without a permit," says Thompson.

CAROL POLICH

The mother of this apparently abandoned moose calf is likely nearby, waiting for passersby to leave so she can return.

Do the State Park TWIST

Fun things you never expected to do in Montana state parks

Ride the range

Saddle up this spring and head to Medicine Rocks State Park, in southeastern Montana. Galloping past the stunning rock formations, considered magical by Native Americans, you'll feel like you're part of the Old West. Look for graffiti carved by pioneers, including Theodore Roosevelt's. Open year-round. Call (406) 232-0900 for more information.

JOHN LAMBING

Four state fish records tumble

In 15 years of ice spearing, Ron Gulbertson had never even seen a shortnose gar. So he was surprised when, on December 22, 2003, one of the prehistoric fish swam beneath his ice hole on a dredge cut downstream from Fort Peck Dam.

"I'd just speared a 30-pound buffalo [fish], and when I was finished taking care of it, I turned back to my hole and there was the gar," says Gulbertson, of Glasgow.

He grabbed his seven-prong spear and plunged it into the pike-shaped fish, then hauled the 34-inch gar through the large ice hole.

Not knowing he had a state record, Gulbertson took the fish home and wedged it into his freezer, planning to cook it someday. "My dad used to eat gar back in the '40s, and I figured I'd eat this one," he says.

But after a few weeks, Gulbertson's youngest son convinced him to take the fish to the local Montana FWP office and have it weighed and certified. The 7.02-pound gar—which would have weighed more before drying out in the freezer—topped the existing state shortnose gar record by nearly 4 pounds.

Gulbertson says he's having the fish mounted. "It's not every day you spear a record," he says. "My friends think it's pretty neat."

Another 2003 state fish record breaker was Matt Washut, of Billings, who caught a 21.59-pound freshwater drum on May 3 at Fort Peck Reservoir.

Glenn Owens, of Bozeman, caught a new record arctic grayling of 3.63 pounds on June 28. The 20-inch fish took a wet fly at Little Washtub Lake on the Beartooth Plateau.

And John Bomar, of East Helena, used a jig to catch a 7.85-pound (27-inch) kokanee salmon at Hauser Lake on September 23, topping the previous record by more than 1.5 pounds.

JOSEPH TOMELLERI

Shortnose gar

New Zabel wildlife print helps Montana conservation projects

Sales of a new wildlife print are raising funds to help injured wildlife, protect historic Bannack, and carry out other important conservation work. It is the first in a series of prints commissioned by the nonprofit Montana Fish, Wildlife & Parks Foundation to raise money for conservation projects statewide.

The new print, by renowned western artist and FWP Foundation board member Larry Zabel, shows a grizzly looking out at Old Man of the Hills, a landmark ridge along the Rocky Mountain Front.

"We're really honored that Larry has donated this special painting to the FWP Foundation," says Spence Hegstad, foundation executive director and previously an FWP Commission chairman. "It's a great image of a great place that is raising money for a great cause."

The FWP Foundation was created in 1999 to provide private support for critical conservation projects, such as managing grizzly bears, restoring state parks, and other work beyond the scope of traditional Montana FWP funding sources. The foundation board consists of 11 businesspeople and civic leaders passionate about Montana's wildlife and scenic places.

OLD MAN OF THE HILLS, BY LARRY ZABEL

To date, the foundation has helped fund the Wind River Bear Institute's Partners for Life project, which uses specially trained dogs and other tools to aversively condition grizzly bears to understand and respect human boundaties. Other foundation-supported projects include the new Montana Wildlife Rehabilitation Center in Helena and a fire detection and suppression system at Bannack State Park.

Zabel's new fund-raising print is available in several formats, including 500 limited-edition signed and numbered prints, 100 high-resolution giclée prints, and 100 special-edition prints honoring FWP game wardens and the TipMont (Turn in Poachers) Program. The printing was donated by Bill Cady, a foundation board member and owner of Advanced Litho Printing in Great Falls.

The 19- by 32-inch prints sell for $195. All proceeds go to fund FWP projects endorsed by the foundation board. In addition to ongoing funding for the Bannack and wildlife rehabilitation center projects, new foundation funds will be channeled toward the TipMont Program and a new FWP documentary about Montana wildlife restoration.

To order, contact Linda Howard at 444-3766 or lhoward@state.mt.us.

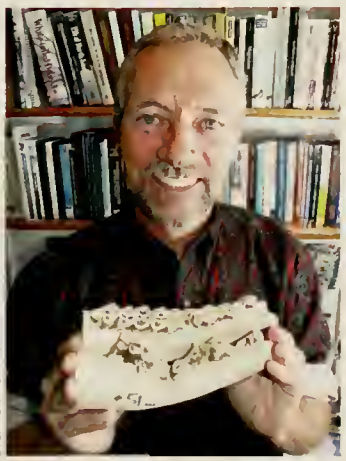
MIKE GURNETT/MONTANA FWP

Larry Zabel works on *Old Man of the Hills*, the first in a series of wildlife prints commissioned by the Montana FWP Commission to raise money for statewide conservation projects.

Too much fluoride causing early Yellowstone elk deaths

A new study shows that elk that graze near hot pools and geysers in the nation's first national park are dying roughly five years earlier than elk elsewhere in Yellowstone. Robert Garrott, an ecology professor at Montana State University who has been heading the research project, says the problem is too much fluoride. Found naturally in the geothermal features and magma that lie close to the earth's surface in Yellowstone, the fluoride, along with abrasive silica dust in volcanic soils, prematurely destroys the elks' teeth. Though low levels of fluoride are good for teeth, high levels can wear down molars, making it difficult for the animals to break down plant tissue. The elk then become weak and susceptible to disease and depredation.

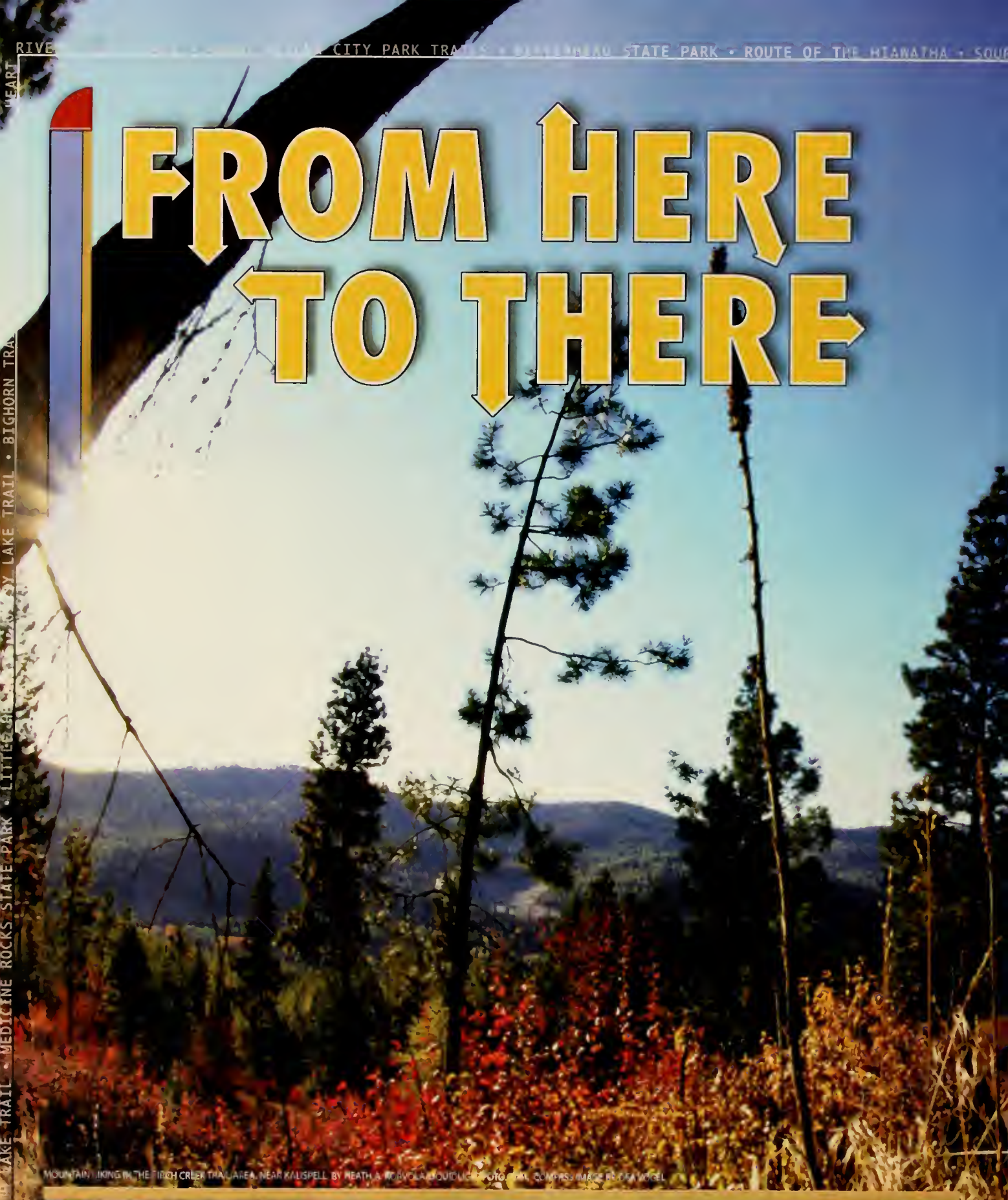
"In ungulates, tooth wear dictates longevity," Garrott says.



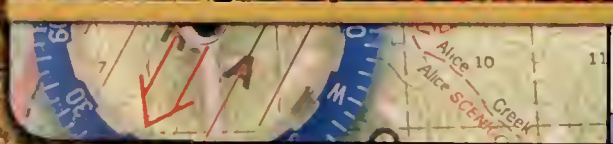
STEPHEN HUNTS, MSU NEWS SERVICE

■ **Bob Garrott with one elk jaw showing normal teeth and another showing abnormal wear from excess fluoride.**

FROM HERE TO THERE

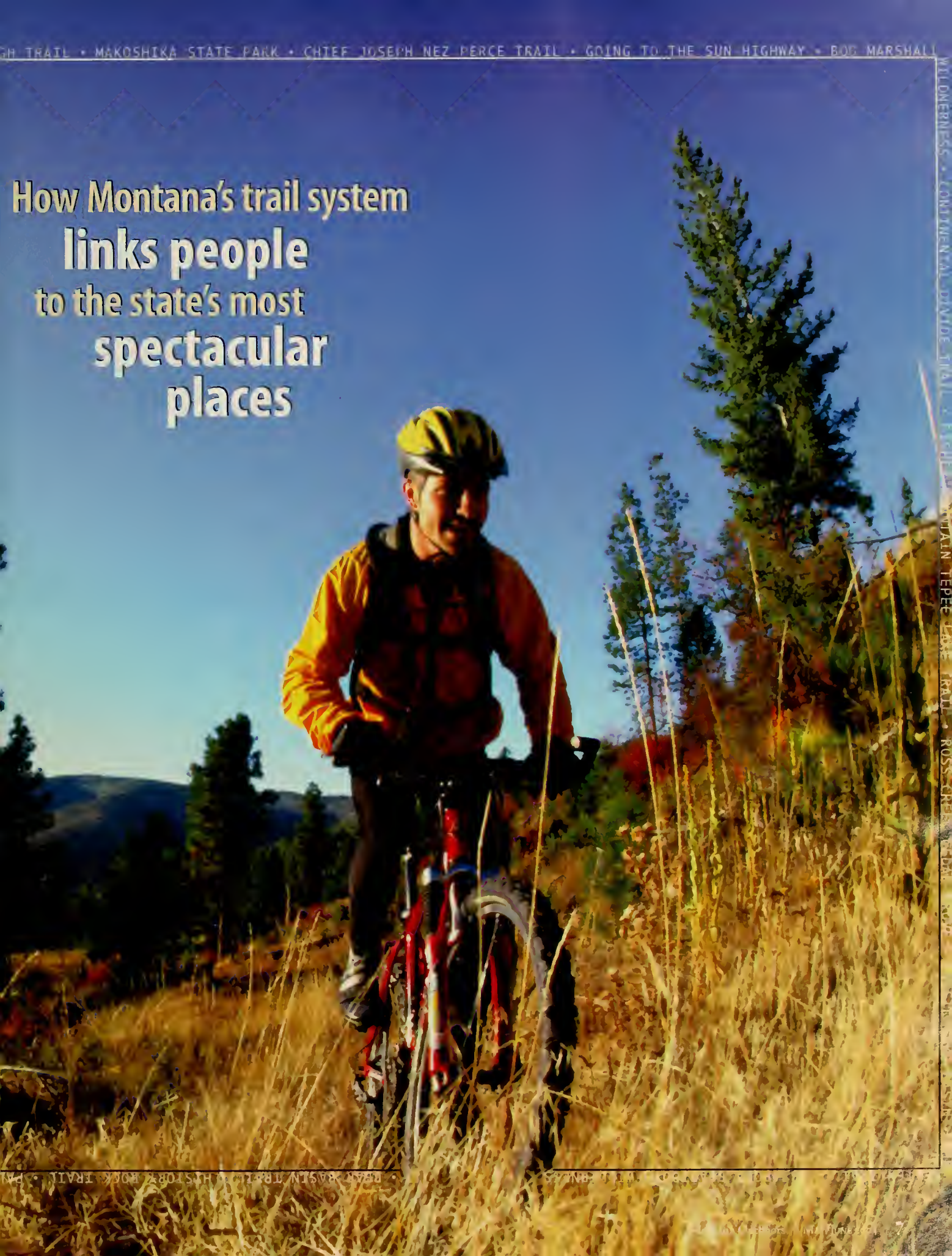


MOUNTAIN HIKING IN THE TIPSH CREEK TRAIL AREA NEAR KALISPELL. BY HEATH A. KOZOLA/MOUNTAIN [illegible] PHOTOS. COMPASS IMAGE BY CRAY VOGEL



By Jeff Erickson

TRAILS


How Montana's trail system
links people
to the state's most
spectacular
places

WE WERE HIKING UP the Prospect Shafts Trail on Mount Helena, under a bright summer sun. As my wife, Mary, our old friend, Bruce, and I neared the summit, sweeping views of the Helena Valley and surrounding mountains unfolded.

Bruce, an avid hiker on a quick stopover from his home in California, exclaimed, "Helena might be the nicest state capital in the country!" He was even more impressed when we pointed out the many other trails in the distance. Clearly, there were too many choices for just one day, and all were easily accessible from our house.

As we headed down the mountain, Bruce remarked, "It's amazing—everyone here seems so happy." He was right: All morning the many hikers, joggers, mountain bikers, and even dogs we passed displayed nothing but friendly grins.

Helena trail users aren't the only ones smiling. Across the state, a growing number of Montanans are enjoying more trails closer to home. Montana's diverse and far-flung trails—including its legendary backcountry routes—are gradually becoming more connected and accessible, improving the health of trail users, local economies, and Montana communities throughout the state.

15,000 TRAIL MILES

An expanding population, growing numbers of tourists, and increasing participation in outdoor recreation mean more people are using Montana trails than ever before. Most trail use is for nonmotorized travel (a 1998 FWP survey indicated 90 percent of Montana trail users participated in hiking), but motorized use is rapidly growing, too, as the population ages. For example, the number of motorcycle and off-highway vehicle (OHV) registrations in Montana grew by more than 200 percent from 1990 to 2001.

Montana's 2,300 designated public trails cover nearly 15,000 linear miles, 99 percent of which are on federal land (mostly in national forests). Though extensive, this trail system has actually declined in number and mileage over the past few decades, due to lack of maintenance and other reasons.

There are exceptions. City and county trails are growing more extensive in Montana's metropolitan areas. In Great Falls, for example, the number of miles in the River's Edge Trail quadrupled over the past decade from 7 to 28. Though urban trails comprise a tiny percent of Montana's total trail system, they receive considerable use by being close to population centers.

As in other parts of the country, Montana's urban residents increasingly want trails near where they live, and communities are working to meet that demand.

As Great Falls trails advocate Doug Wicks observes, "We're taking trails to the people, rather than having people come to the trails."

Cities and towns are also building trails to connect their residents to backcountry routes in surrounding federal lands. One example is in Bozeman, where the Gallatin Valley Land Trust is working to link urban routes with trails in the nearby Bridger and Gallatin mountain ranges.

Each of the federal, state, and local agencies responsible for managing Montana's trail system has its own policies, procedures, and regulations. Yet because Montana's trail system is an interconnected web, agencies are increasingly working together.

FWP's Parks Division, for example, manages relatively few trails yet administers the Recreational Trails, Snowmobile, and Off-Highway Vehicle Grant programs. The programs provide roughly $1.4 million each year in state and federal funding for a variety of trail projects such as construction, maintenance, rehabilitation, grooming, and weed control on municipal, state, and federal lands throughout Montana.

In addition, FWP provides trail-related educational programs on topics like ethics and safety and cooperates with federal officials on trail-related law enforcement.

John Favro, U.S. Forest Service trails coordinator at Missoula, says the federal agency is coordinating its trail management with other agencies "to create a seamless trail system across the state."

TRAILS FOR EVERY USE

People have been walking, riding, and canoeing along Montana trails for centuries. Many existing trails follow these ancient routes, such as the Old North Trail along the Rocky Mountain Front, an important travel and trade corridor for at least 3,000 years. Over the years, trail use technology has expanded to include skis, bicycles, in-line skates, motorcycles, all-terrain vehicles, snowmobiles, and other ways of getting from one place to another.

Montana is best known for its web of backcountry hiking and equestrian trails, traversing vast, spectacular landscapes. Most of the backcountry system has been in place for decades, so agencies now focus primarily on maintenance, enforcement, improving access, protecting natural resources, and connecting trails to each other.

Outside of national parks and designated wilderness areas, many trails are open to snowmobiles, motorcycles, and four-wheelers. However, riders have seen increasing restrictions in recent years due to trail damage by vehicles and conflicts with other trail users. According to Doug Abelin, a

Finding your own trail

DeLorme *Montana Atlas & Gazetteer:* An indispensable atlas of trails, back roads, mountain lakes, and other features.

U.S. Forest Service maps: Essential for finding most of the state's best trails. (406) 329-3511 or www.fs.fed.us/r1.

Bureau of Land Management maps: (406) 896-5000 or www.mt.blm.gov.

U.S. Geological Survey (USGS) topo maps: These 1:24,000-scale maps, which show land contours, are essential for longer backcountry hikes. http://topomaps.usgs.gov.

National parks maps. Excellent trail maps are available for both Glacier and Yellowstone. nps.gov/glac and nps.gov/yell.

Travel Montana: This Montana state agency publishes a free winter guide that provides an excellent overview of the major snowmobile and Nordic ski trails. (800) 847-4868 or travel.state.mt.us.

Falcon Guides: The Falcon series of Montana hiking and backpacking guides, published by Globe Pequot Press, are great for beginners and experts. The recently updated *Hiking Montana* features 100 of the state's best hikes.

TRAIL MIX With 2,300 different trails covering more than 15,000 miles, Montana is laced with a diversity of routes ranging from backcountry foot trails to urban commuter bicycling lanes. Clockwise from top left: Backpacking across Corduroy Bridge in the Beartooth Wilderness Area; snowmobiling a winter trail in the Whitefish Range; canoeing the Lewis and Clark National Historic Trail near Great Falls; horseback riding on the Refrigerator Canyon Trail in the Helena National Forest; cross-country skiing the Chief Joseph Cross Country Ski Trail near Lolo Pass; mountain biking the Prairie Trail, part of the Mount Helena City Park trail system; following a quiet path through the Ross Creek Cedar Grove Recreation Area, near Libby; running along Jogging Trail Creek Road in the Paradise Valley; following guide rocks and interpretive signs on the Cap Rock Nature Trail at Makoshika State Park, near Glendive.

representative on FWP's OHV Advisory Committee, demand is growing for more long-distance routes that allow riders to spend the entire day exploring, such as those in the Whitetail-Pipestone area near Butte, which has become a major OHV destination.

Across the country, trails built on abandoned railroad grades have been a spectacular success story. Unfortunately, Montana has not capitalized on rail-to-trail opportunities to the extent many states have. Between 1979 and 1992, approximately 1,400 miles of rail line were abandoned in Montana, largely reverting to private landowners rather than becoming public trails. Nonetheless, there are scattered rail trails in Montana, including the spectacular Route of the Hiawatha along the Idaho border.

Winter trails have become increasingly important components of Montana's trail system. Snowmobilers come here from across the country to enjoy two dozen major systems that provide roughly 4,000 miles of groomed routes. Although the status of Yellowstone National Park snowmobiling is in legal limbo, West Yellowstone has become a mecca for snowmobilers in recent years, with nearly 600 trail miles in the immediate vicinity of town.

"The interconnectivity of trails in the West Yellowstone area allows folks to go as far as they want," says Bill Howell, a local snowmobile advocate.

Montana's Nordic (cross-country) ski routes are less extensive than those for sledders, though excellent systems exist throughout the state's western half. In addition to some of the wildest winter backcountry in the lower 48 states, Nordic skiers can find many groomed systems, such as Rendezvous Ski Trails in West Yellowstone. In Missoula's Pattee Canyon, "groomed ski trails are within a few miles of town, allowing skiers to use trails after school or work" says Steve German, Nordic ski representative on FWP's State Trails Advisory Committee. As with snowmobile trails, local cross-country ski clubs run by enthusiastic volunteers apply for FWP grants to purchase, maintain, and operate trail groomers and other equipment.

Montana is also bisected by many historically significant trails. The Lewis and Clark National Historic Trail follows rivers, the interstates of the pre-rail era. Others, like the Bozeman Trail, Mullan Road, and Nee-Me-Poo (Nez Perce) National Historic Trail, are historic human migration corridors. Though these routes run mostly through private property, visitors can often find signs or other interpretive displays where the routes intersect public land.

With so many types of trails and trail users, it's not surprising that people cross paths, sometimes with differences of opinion about who should be where. The most publicized conflicts recently have been between motorized and nonmotorized users. Although the differences in perspective sometimes seem insurmountable, many trail users maintain that most disagreements can be resolved.

"Lots of conflict comes from a lack of understanding of the other side," says Angie Grove, a mountain biker from Helena. And Howell, the snowmobiler, says, "Everyone has their own interest, and mine is no better or worse than anyone else's. If people would sit down across the table and talk, they could work out a lot of these problems." Adds Bob Walker, FWP trails coordinator, "There's room out there for everybody, but everybody doesn't need to be everywhere."

MORE THAN JUST A GOOD TIME

While conflicts persist, there's no argument that trails enhance a community's quality of life. In addition to the obvious recreational benefits, trails help bind communities together. Urban trails in particular have become a kind of modern common space where people from many different backgrounds can mingle.

"Anywhere you live in Helena, there's a network of accessible trails," says Connie Cole, an avid equestrian trail user and board president of the Prickly Pear Land Trust, which helps preserve public land and trails in the Helena area.

Farther down the Missouri River from Helena, the beautiful River's Edge Trail has become a huge recreational and social amenity, linking Great Falls parks along the river and attracting a wide range of users, from day-care toddlers to senior-center septuagenarians. "It has added a new dimension to life in Great Falls," says Wicks, the local trailblazer. "There's an uplifting character to the River's Edge Trail, even for people who never use it."

Darleen Tussing says she and other trail enthusiasts in Billings are working to create a 60-plus-mile system for the city's metropolitan region, tying together neighborhoods, schools, parks, commercial areas, the Yellowstone River, and nearby communities. Trails, says Tussing, offer "another opportunity to connect people—socially, recreationally, and through transportation."

Trails don't just strengthen communities; they also beef up local economies. From afternoon dogsledding jaunts to weeklong outfitted pack trips, Montanans and visitors spend millions of dollars on trail-related activities. According to a recent University of Montana study, nonresident snowmobilers spend an average of $224 per day, for a total of $44 million annually. And a study by the Gallatin Valley Land Trust found that Bozeman's popular Gallagator Trail enhanced nearby property values and was a selling point used by real estate agents.

Wicks knows of some Great Falls businesses that whisk potential employees off to the River's Edge Trail to help form an early, positive impression of the city. "The idea is that the visitor has come to a place where the quality of life is improving," he says.

And Tussing says more and more Billings developers are viewing trails "as a positive enhancement for both the community as a whole and their development projects."

The benefits of trails don't stop there. Urban trail networks provide alternative transportation opportunities, reducing air pollution, energy consumption, and traffic congestion. "I use urban riverfront trails to commute to work by bicycle, and my rides are frequently the best part of my day," says German, the Missoula trail advocate. Cole laments that many people in the Helena

ROUTES TO MONTANA WONDERS

Right: Mountain biking in the Flathead National Forest near Whitefish. Far right: Taking it all in along the Continental Divide Trail.

TRAILS

Jeff Erickson is a freelance writer in Helena.

area who wish to walk or cycle to work are often forced to drive for lack of commuting trails. "I know that if more trails could be integrated into the Helena Valley, they would be used," she says.

Trails also offer opportunities for friends and families to spend time together. Howell, who notes that parents often take their kids snowmobiling, says, "Anytime you can provide family recreation, you're going to have a positive impact on [kids'] quality of life."

Many trails are tied to conservation efforts. Greenways are linear trail corridors that provide open space, native vegetation, wildlife habitat, protective buffers along waterways, and groundwater recharge areas. Trails can also help link, highlight, and conserve important historical sites. Additionally, trails are important places for organizations to provide interpretive and educational information through signs, brochures, and guided walks.

And then there's the obvious health benefit of trails, which encourage and enhance physical activity and fitness for an increasingly obese population.

Perhaps the greatest benefit of Montana's trails, however, is that they take people to the state's most beautiful and sought-after places. Backpackers and hikers use trails to reach vistas in Glacier National Park and other scenic destinations. Snowmobilers and Nordic skiers follow trails to striking winter landscapes. And hunters and anglers take trails to prime elk habitat and mountain trout lakes.

For many folks, trails may not be why they are outdoors but instead are how they reach their favorite places to do the things they love.

As Whitefish-area hiking enthusiast Rachel Schmidt puts it, "Trails are tools for creating adventure."

PHOTOS BY HEATH A. KORVOLA/LIQUIDLIGHTFOTO.COM.

TROUT

ABOVE THE CLOUDS

Tips on finding and catching trout in Montana's scenic mountain lakes

By John Fraley

ONE OF THE MAIN reasons I love high-mountain lakes—besides the scenery, wildness, and solitude—is that anglers of any age can often catch beautiful trout using simple fishing techniques. At times, even a young, novice angler can feel like an expert.

Some say high-mountain trout are dumb. I wouldn't go that far, but I will admit they can be naive. Once, while fishing along the shoreline of a remote lake in the Great Bear Wilderness, I watched a 13-inch cutthroat leap out of the water and grab a lure dan-

SPARTASPHOTO.COM

LOCATING GREAT LAKES

Left over from my college years at the University of Montana is a tattered remnant of an early edition of *The Montanans' Fishing Guide*, written by my hydrology professor, Dick Konizeski. Back then, in the early 1970s, my friends and I would pore over the book, figuring out which lakes to fish and how to get there. The western Montana volume, now completely updated and revised by Bill and Michele Archie, is still the most complete single source of information on fishing Montana mountain lakes. (A separate edition for east of the Continental Divide was updated by Jim Derleth in 1982).

Montana Fish, Wildlife & Parks is another great source for mountain trout lake information. The department's regional offices provide lists of alpine lakes and the planting schedule for the lakes that receive hatchery fish. (On the Internet, go to fwp.state.mt.us, click on "Fishing" and then "Fish Stocking Info.") In northwestern Montana, the popular list includes 125 lakes periodically stocked with westslope cutthroat trout.

Stocked lakes aren't necessarily the best fishing waters. Many lakes where trout naturally reproduce provide excellent fishing. Also, just because a lake was stocked in spring doesn't mean it will have lots of hungry fish when you arrive there in August. Some lakes are stocked with catchable (7- to 11-inch) fish, but most are stocked with fingerlings or even mosquito-sized fry, which won't be interested in anglers' offerings for at least a year or two.

A good way to find an alpine lake for fishing is to scan a topographic map of an area you plan to visit. After locating some

gling from a friend's fishing rod. And I've often seen high-country cutthroat strike at bobbers and casting bubbles.

More than 1,000 mountain lakes in Montana support productive trout fisheries, mostly in the state's central and western regions. Most of these alpine lakes have self-supporting trout fisheries; the rest are stocked periodically. Mountain lakes contain primarily cutthroat, rainbow, and brook trout, though some hold arctic grayling and even golden trout. The majority of the fish caught are under 12 inches, but large mountain trout over 20 inches are caught every year.

Alpine trout lakes are extremely popular with anglers who have the time and energy to hike, one of the few ways to reach these remote waters. But hiking to a mountain lake doesn't necessarily mean you'll catch fish there. If you want to add to your wilderness experience by catching and eating this high-mountain soul food, you need to know where to go, when to go, and which fishing gear and techniques to use.

RARELY FUSSY When it comes to lures and flies, high-country trout aren't too finicky. Spinners, spoons, and streamers all work equally well underwater, and a wide range of dry flies take trout on the surface. Inset: The author's son Kevin with a 4-pound cutthroat at a lake in the Jewel Basin Hiking Area. Left: Two anglers cast flies on the clear waters of Fairy Lake.

RAPALA-NORMARK GROUP

JEFF HENRY

WEATHER OR NOT When the sun shines, fishing from a warm rock on a mountain lake can be the most pleasant fishing experience in Montana. But the weather often runs foul at high altitudes, and snow is not uncommon even in midsummer. Backcountry anglers should always prepare for cold, wet conditions. Bottom: Originally from California, rare golden trout can be caught in several Montana mountain lakes.

JIM WEBELY

JOHN FRALEY

potential lakes, you have several options: look them up in *The Montanans' Fishing Guide*, in other reference books, or on FWP lists; ask local anglers or the local FWP biologist about the lake; check with a nearby fly shop or sporting goods store; or just hike in and hope the lake supports fish.

The most valuable tips come from someone who has recently fished the lake you plan to visit. A lake that fished well for you last year may be a dud this year. Most high-quality trout lakes have a reputation that's hard to hide, so by asking around you can usually find ones worth the effort. The best lakes require a long and difficult hike, which prevents them from being overfished.

It helps to be flexible and ready to take off at a moment's notice. When the mysterious set of climatic conditions comes together to produce hot fishing in a mountain lake, take advantage of it. Last fall, an angler whose opinion I trust told me he had recently caught many trout in a wilderness lake I previously had visited. Immediately, I began planning a trip there with my son, a friend, and his son for the next day we were all free. Sure enough, we had great fishing from the first cast, catching roughly 200 westslope cutthroat (nearly all of which we released) in just four hours.

That's not to say every hot tip plays out. Mountain lake fishing often earns its fickle reputation. So be sure to enjoy the hike, scenery, solitude, and huckleberries when you head up to a "sure thing," because many times that is all you are going to get.

SLIM SEASON

Weather dictates the fishing season at alpine lakes. In most years, June through October is ice-free, but you can't count on that. Once in mid-October, I hiked into a lake in the Great Bear Wilderness to fish for cutthroat trout and was disappointed to find it covered with an inch of clear ice. At the other end of the season, many higher lakes are still frozen over in June. That's why the most reliable time to fish high-mountain lakes is from July through September. Often, September can be the best month, because trout react to declining water temperatures by feeding vigorously in order to build fat reserves to get them through the winter.

For the hard-core skier or snowshoer, there's always the obscure sport of high-elevation ice fishing. But you need to consider a few things before strapping an auger onto your back and heading out. First, remember that it will take a lot longer to get to the lake in the winter than it did during the summer, and you should prepare for extreme winter weather. Also, the access road may be snowed in, which means you may have to park farther from the trailhead. Finally, based on my experience, a typical ice auger will not be long enough to drill through the ice and reach the water. Usually after you've made your hole you still have to find a log and smash through several feet of soft ice and slush.

GET YOUR ACT TOGETHER

Backpacker's anxiety is the worried feeling on the first day of a backpacking trip that you have forgotten something important. One solution to this common malady is to prepare for your mountain lake trip a week in advance. Get everything loaded in your pack as if you were leaving the next day. Then you have the next several days to locate items you forgot to pack or couldn't find the first time.

As on any backcountry trip, take an emergency kit containing a flashlight, fire starter, rope, knife, rain gear, survival blanket, and high-energy food. And don't go without a good map and a compass.

It's great having a secret lake, but you don't want it to be so secret that no one can find you if you run into trouble. Always tell someone exactly where you are going and when you will be back. If you plan to stay overnight, take a tight tent and a warm sleeping bag, because it can be cold in the high country even in summer.

HOW TO CATCH TROUT

There are no surefire guidelines for fishing mountain lakes. Sometimes the fish are deep. Sometimes they are shallow, cruising the shoreline. Sometimes it seems they are in neither location. If I had to pick one place on a mountain lake where I consis-

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John Fraley is an FWP information officer at Kalispell.

tently catch trout, however, it would be where a tributary stream flows in.

Fishing gear depends on your preferences. Fly fishing on alpine lakes can be spectacular. Often you can cast to a visible rising or cruising fish and watch it take the fly, the ultimate experience for most dry-fly anglers. Reliable dry flies include the Royal Wulff, the Elk Hair Caddis, and various ant and grasshopper patterns. Wet flies can be effective, too, either fished just under the surface to imitate an emerging insect, or fished deeper. Mountain trout seem more likely to follow and strike a wet fly stripped in slowly rather than quickly.

Because high-altitude trout are usually less wary than front-country fish, they often provide encouraging action for beginning fly anglers. If you're just getting started or have a beginner in the family, mountain lakes are a great place to learn the craft.

Because it can be difficult to fly cast around brushy shorelines, sometimes a spinning rod is the best way to get a fly out onto the water where the fish are. Tie on a casting bubble, leaving about 3 feet or so of line, to which you tie a wet or dry fly. The bubble, a clear bobber that doesn't scare fish, provides enough weight for you to fling the tiny fly to rising fish without having to backcast.

A standard spinning lure works well, too, though you need to select one heavy enough to cast 50 feet or more. My favorite is the ¼-ounce Kamlooper spoon, which I maintain is the best cutthroat trout lure ever made. Before your trip, make sure to spool up plenty of fresh 6-pound-test line so the lure casts easily.

A proven spin-fishing mountain lake method is to use a live grasshopper on a size 6 or 8 hook suspended roughly 3 feet below a bobber with a small split shot. This is a great option for kids. Sometimes fish will hit this setup when they won't take anything else. Worms also work well in some lakes. I always tell people to take a variety of tackle, because you never know what will attract trout at a given lake at a given time.

FOR THE PAN

There's nothing wrong with keeping a few trout to eat. In fact, that's one of the highlights of mountain lake trout fishing. Be sure to clean the fish as soon as possible and keep them cold in a spring or snowbank. Dispose of the head and entrails by tossing them as far out into the lake as possible. There they will sink and eventually re-enter the lake's food chain. Don't leave fish guts on shore or in the shallows. And never pack them out, because the smell is known to attract bears.

High-mountain trout are delicious and often have pink, salmonlike meat acquired by eating pigmented zooplankton and scuds (freshwater shrimp). In my opinion, the best trout cooking methods are either to roast them in aluminum foil with onion and lemon or to fry them in light oil (with or without a light breading). Try cooking a few fish with either method. If you have kids along, they'll know what to do with the results.

The joy of eating fresh-caught fish is just one reason mountain trout are so appealing to backcountry users. In the landmark wilderness textbook, *Wilderness Management*,

MICHAEL J. WOLF

HIGH FLIERS Mountain lakes hold special appeal for fly anglers happy to leave finicky lowland river trout behind for a day or two. Although most lake fishing is from shore, those willing to haul a float tube uphill a few miles can paddle out to deeper waters, where mountain trout often lurk in midsummer.

MIKE BARLOW

ALWAYS NEVER THE SAME In the first edition of *The Montanans' Fishing Guide*, Dick Konizeski writes, "The fishing potential and access routes to high mountain lakes and streams can and often do change radically in a single season due to a variety of causes." What never changes, however, is the setting of mountain lakes (scenic), the taste of fresh-caught fish (fantastic), and the reaction of kids when a fish is brought to shore (fascination).

SUSANNA THOMAS

J. C. Hendee and other authors report on the long tradition of fishing wilderness lakes. They note that fishing ranks high on the list of backcountry activities and that for many wilderness visitors "fishing, like hunting, can achieve its finest quality in wilderness." High-mountain lakes, they say, are a place where a visitor can indulge in the "primitive myth" of living off the land.

The idea of surviving on our own in the wilderness may very well be a myth. But when my kids and I are sitting on a mountain lake shore, a pan of crackling hot cutthroats frying in the fire, what we're doing and experiencing seems like the most real thing on earth.

Mountain Lakes Matter

FWP recognizes high-mountain lake fishing as an enormous recreational resource. The Absaroka-Beartooth Wilderness, for example, supports thousands of visitor-days per year, mostly from backpacking anglers.

"We consider it one of the most important fisheries in south-central Montana," says Jim Darling, FWP regional fisheries manager in Billings. "Most wilderness visitors say that if it weren't for the fish, they wouldn't be there."

In addition to providing recreation, mountain lakes are important refuges for native Montana species such as cutthroat trout, which are declining in stream environments. The lakes also support important trout transplanted from other states, such as the rare golden trout, originally from California, and Wyoming's DeSmet rainbow, which may contain genes resistant to whirling disease.

For each trout lake in the Absaroka-Beartooth, FWP biologists maintain records of surface acreage and depth, stocking schedules (if any), catch-rate goals, and other information. The department also provides information on catch data, average fish size, locations of access sites, and campsites. Roughly 200 lakes in the Absaroka-Beartooth have self-sustaining trout populations; trout are planted in the other 114 lakes.

FWP lacks funds and staff to individually manage every one of the roughly 250 mountain trout lakes in northwestern Montana. But pressure on these lakes continues to grow, as more and more anglers head to backcountry areas to catch native cutthroats and other trout.

TIM LOMAN

NELSON KENTER

"If you look at the lakes collectively, they generate as much use as some of our largest fisheries, such as Flathead Lake," says Jim Vashro, regional fisheries manager in Kalispell. "And for solitude and beauty, our mountain trout lakes are probably the region's best fishing spots."

Fish populations in about half the lakes in northwestern Montana are maintained by stocking, while the rest are self-sustaining. Many of these lakes support native westslope cutthroat trout, the only species that is stocked. —*John Fraley*

More on mountain lakes

- *Wilderness and roadless areas outside national parks:*
  - Number greater than an acre in size: 6,281
  - Number that are fishless: 5,306 (84%)
  - Number that support fish: 975 (16%)
- *Glacier and Yellowstone national parks (within MT):*
  - Total number of mountain lakes: 757
  - Number that are fishless: 709 (96%)
  - Number that support fish: 28 (4%)

- *Most common fish species, in order of abundance:*
  1. cutthroat trout
  2. rainbow trout
  3. brook trout
  4. arctic grayling
  5. golden trout
- *Other species:*
  - hybrid trout
  - bull trout
  - lake trout
  - sculpin
  - brown trout
  - suckers
  - minnows
  - white fish

Compiled by Jeff Hamm, FWP programmer/analyst.

Net Results

By Dave Hagengruber

As the orange sun drops over the horizon, a driftwood fire crackles on the beach, sending sparks high up into the darkening sky. Laughter is barely audible over the waves breaking on shore. And like a scene from *Gidget Goes Hawaiian*, there's romance in the air.

But this wind-swept shore is at Canyon Ferry Reservoir in Montana, not at Waikiki. Instead of swim trunks and bikinis, the crowd huddled around the fire this evening wears wool hats and neoprene waders to ward off the chill of the late April night. And rather than tanned surfers and beach bunnies, the love interest here centers on one of Montana's most popular game fish, the walleye.

Although it's no mystery that walleyes are found in 35,000-acre Canyon Ferry Reservoir, biologists charged with its management have plenty of questions about the populations in this Missouri River impoundment. Tonight, they hope to find some answers by netting walleyes, tagging the fish, and then releasing them back into the reservoir.

This work, called population monitoring, happens every spring as rising water temperatures pull the walleyes toward their spawning areas in the rocky shallows. Where walleyes go, biologists and their nets are not far behind. And for the past several years, the FWP scientists have been joined by a group of volunteers, most of them die-hard walleye anglers who want to learn more about the fish and the reservoir while assisting FWP in the process.

FWP biologist Eric Roberts coordinates the Canyon Ferry netting activities. "We've been running this net series out here since 1997," says Roberts, looking bedraggled from five consecutive nights of netting. "In recent years, the volunteers have really made a difference. The more volunteers, the more nets we can set out each night, which means we can gather more information about these fish."

Arriving at the reservoir late in the day, Roberts and his crew work quickly to string 100-foot gill nets into the lake perpendicular to shore before the light fades. Once the nets are set, the pace of the evening slows. Driftwood is gathered, a fire is lit, and hotdogs are set to roast over the coals.

"Each night that we're out here, we spend four or five hours sitting around the campfire just talking," says Roberts. "We all get to know each other a lot better. The volunteers get to ask us questions about the reservoir and its management, and we get a chance to explain why we do things the way we do. Just to be able to sit and talk while we're in this kind of setting is great. I wish we could do this with more anglers."

At the beginning of each hour, the conversation abruptly ceases as the crew leaves the warmth of the fire to check the nets. The biologists and anglers follow the cold white beams of their headlamps into the darkness, where they split into teams to check each gill net. The mesh in the nets is large enough to let perch and small trout pass through, but larger trout, carp, and walleyes become entangled. As their hands turn numb from the ice-cold water, crew members carefully remove fish, their excited shouts resounding up and down the shoreline as each team proclaims its catch.

DAVE HAGENGRUBER

WALLEYE WAITERS Local volunteers and FWP biologists shoot the breeze on the windy shores of Canyon Ferry Reservoir as gill nets fill up with walleyes. In recent years, the department has invited local anglers to take part in annual spring surveys, which help biologists better understand the reservoir's ever-changing walleye population.

Back on shore, crew members quickly process the walleyes. After determining the sex, they weigh and measure each fish, assess its spawning condition, collect scales (later used to determine age), and then clamp a small tag into its jaw before returning it to the water. Roberts will use the numbers to identify any walleyes recaptured later by anglers or survey crews.

The anglers enjoy handling the walleyes, especially the heavy females, which are loaded with eggs and can top 15 pounds.

"Sometimes when we bring in one of the bigger walleyes, it's like a press conference out here with all the camera flashes going off in the dark," says Roberts. "The volunteers love to see those big fish. It gives them something to set their sights on for the upcoming fishing season."

On most nights, it is after midnight before the tired crew pulls the last nets from the water, extinguishes the campfire, and then slowly files off the beach. Then it's home to grab a few hours of sleep before heading to work. The next afternoon, the entire process starts up again.

The cold and wet work of walleye surveys is no beach party, that's for sure. But in early spring, as days lengthen and anticipation for the upcoming walleye season begins to soar, it's not a bad way to spend the night.

Dave Hagengruber is FWP's aquatic education specialist.

What is it about falling water that creates such strong feelings of euphoria?

Is it the sight of wet spray in the air? The sound of water splashing against stone? The look and feel of soft moss, ferns, and other greenery?

Those all play a part, to be sure, but the main reason may be that waterfalls create negative ions, which studies have shown make people feel better and more energized.

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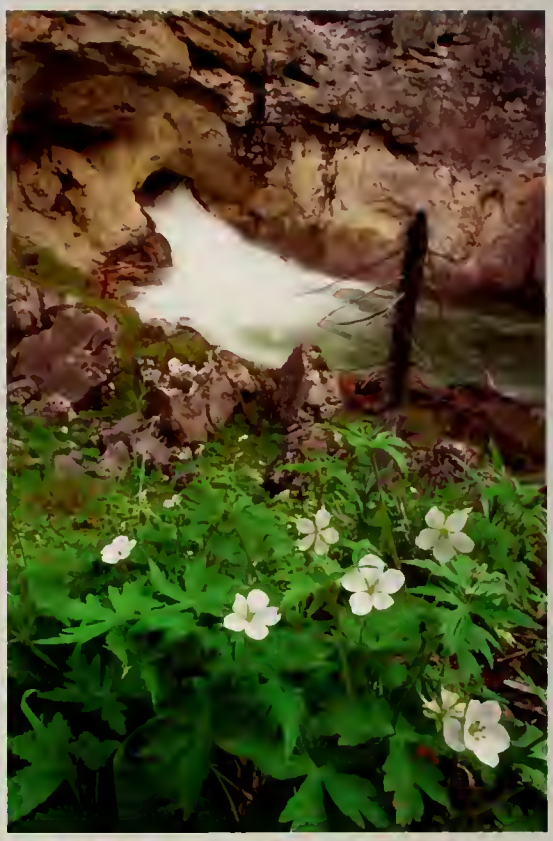
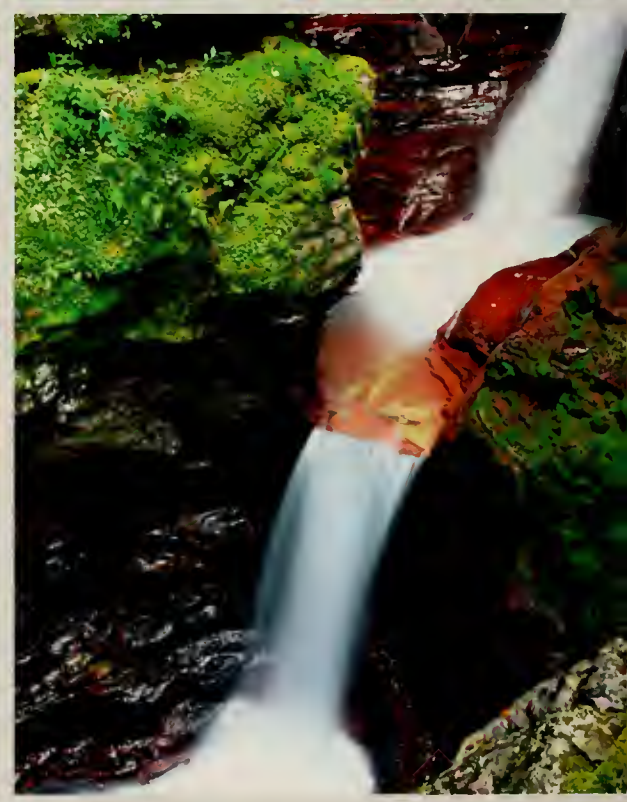
CLOCKWISE FROM OPPOSITE PAGE: A waterfall tumbling over rock and alpine wildflowers in Glacier National Park by Jeffrey Rich; Grotto Falls (Hyalite Creek), near Bozeman, by Radd Icenoggle; a rainbow trout leaping into a waterfall during spawning season by John Lambing; an alpine stream weaving through rocky terrain in the Absaroka-Beartooth Wilderness by George Robbins; spring runoff propelling Cottonwood Creek over moss-covered logs by Judy Wantulok.

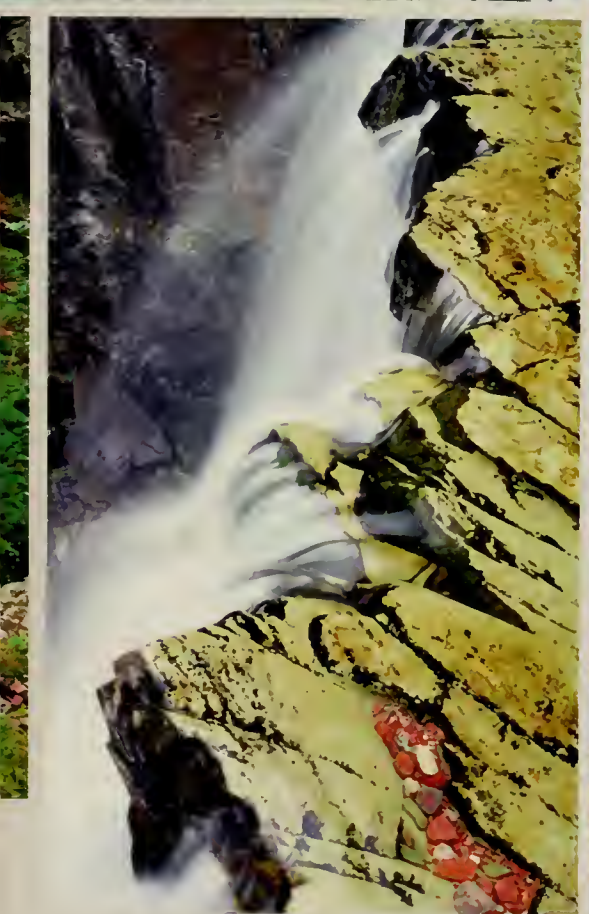
terfalls





CLOCKWISE FROM UPPER LEFT: Running Eagle Falls, in northwestern Montana, by Paul Updike. Natural Bridge Falls, south of Big Timber, by Bob Kurzenhauser; a pool near Ptarmigan Falls, on the Iceberg Lake Trail in Glacier National Park, by Cynthia A. Delaney; Jungle Creek Waterfall, within the South Fork of the Flathead River Wild and Scenic River Corridor, by Steven Gnam; a rocky ledge of Rockwell Falls, in the Two Medicine Valley, by Chuck Haney. Baring Creek, cascading through Sunrift Gorge in Glacier National Park, by John Lambing.

Negatively charged ions are produced in nature by lightning, ocean surf, and waterfalls. When water droplets smash against each other, atoms release electrons and turn into negative ions. Among their effects on people, the ions help the body absorb and utilize oxygen. Though some doctors doubt the therapeutic effect, many people swear that negative ions relieve headaches, reduce depression, and produce a sense of well-being. Will the negative ions at waterfalls soothe you? There's one easy way to find out.



Meet Your New Neighbors

More deer, bears, and mountain lions are venturing into Montana's cities, towns, and suburbs, causing problems and even endangering human life

BY SAM CURTIS

The way Graham Taylor describes it, the situation might have been in urban Maryland or suburban Connecticut. "The deer were everywhere," says FWP's north-central region wildlife manager. "They were on people's decks. They were in parking lots and on the schoolyard. People told us stories of swatting deer with brooms to get them to move away. One afternoon we counted over 380 deer within the city limits."

But it wasn't some East Coast suburb enduring the deer infestation. It was Fort Benton, a small town along the Missouri River 30 miles northeast of Great Falls.

And as in cities, towns, and suburbs across the country where deer numbers have grown too high, efforts to reduce the Fort Benton deer population pitted citizen against citizen. Many residents, tired of their shrubs being nibbled down to nubs, demanded deer removal. Yet others encouraged the animals to stay, either by purposely putting out food or inadvertently leaving bird feeders where deer could reach the seeds. When city officials and FWP proposed a plan to shoot deer to reduce the growing population, some people were horrified.

NORMAN JACOBSON

BIG "BIRDS" Homeowners often inadvertently attract deer by placing bird feeders in places the resourceful animals can easily reach.

"One woman had the same doe deliver twin fawns under her trampoline for two years running," says Taylor. "She was pretty upset that we might actually kill that deer. So, we definitely had split public feelings about the deer situation."

Nuisance wildlife in Montana towns is nothing new. In recent years, however, the problem has worsened. Vehicle collisions with deer are growing, and FWP's regional offices report more and more nuisance wildlife complaints over the past decade.

"The volume of calls I get on black bears in the Flathead Valley has been increasing by 10 to 15 percent annually," says Erik Wenum, FWP bear specialist in Kalispell. "It's now running at between 800 and 1,000 calls each year."

In part, growing wildlife woes are due to increases in both human and wildlife populations, which have made more interaction inevitable. But the main reason for increased conflicts, say FWP officials, has been growing development outside city limits. "The newly developed areas are historic wildlife habitats transformed from open space into subdivisions," says Mike Korn, FWP area coordinator in Helena. "We see a direct correlation between the deer we have in town and development along the fringe. As animals find irrigated plants in suburban landscaping, they basi-

RODNEY SCHLECT

GARY LEPPART

RURAL RENEWAL Pronghorns watch as their grassland habitat becomes someone's backyard. A mule deer buck sits nonplussed as a family walks past on an urban trail. Biologists say that increasing wildlife problems aren't caused so much by animals coming into town as they are by towns moving out to the animals' historic home territories.

cally follow a trail right into town."

Wenum sees a similar pattern causing increased conflicts between people and bears in the Flathead Valley. "It's not so much that bears are coming farther into Kalispell," he says. "It's that Kalispell is moving farther out toward prime bear habitat."

SMALL NUISANCES

Most nuisance wildlife complaints that reach FWP concern small critters: pack rats in the attic, bats in the chimney, skunks under porches. Because such unprotected species are not managed by the department, FWP staff refer these calls to the local city animal control office or to pest control companies. They also suggest places to purchase live traps and will mail out brochures that offer advice on solving the problem.

For example, tinsel, reflective tape, or owl models can keep starlings and pigeons from roosting on buildings. Live trapping and releasing will work on some animals such as squirrels. And, if no local ordinances prevent it, a homeowner can shoot a problem skunk, raccoon, or other unprotected animal.

But when someone is having problems with protected species such as ducks or geese, FWP cannot encourage people to take matters into their own hands. Waterfowl are a particularly vexing problem for wildlife officials because the birds can be so numerous and their abundant excrement messes up yards, recreational areas, and beaches. Yet ducks and geese cannot be harmed without federal permits, even by state wildlife officers. That leaves FWP staff with few options.

"When people continue to feed ducks and geese in town, suddenly we've got waterfowl waddling around on King Avenue and getting run over," says Kevin Schaal, FWP warden sergeant in Billings.

DANGEROUS THREATS

A public nuisance is one thing, but a threat to public safety is something altogether different. So when someone calls FWP and says a bear, mountain lion, or moose has been sighted in an urban area, the response is immediate.

> "The newly developed areas are historic wildlife habitats transformed from open space into subdivisions."
>
> —Mike Korn,
> *FWP Helena Area Coordinator*

"If we get calls about bears or lions, we respond as quickly as possible to remove them with either a bear trap, dogs, or tranquilizers," says John Firebaugh, FWP regional wildlife manager in Missoula. Because they are so large and potentially dangerous, moose also command quick attention from department staff.

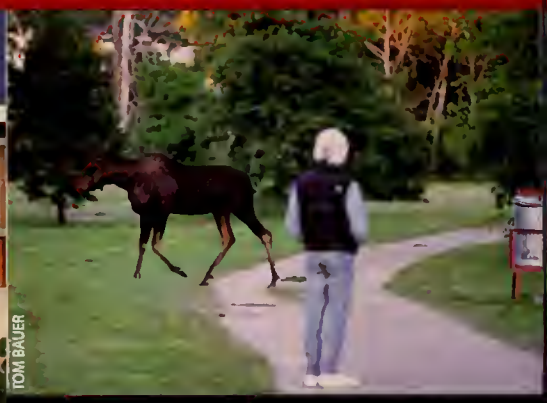
The problem of dangerous wildlife entering urban areas is statewide and growing. Moose wander into Butte, Whitefish, and Billings. Bears have been seen in Bozeman, Missoula, Helena, and Kalispell. "We're getting more and more lion sightings all around the Billings area," says Schaal. Mountain lions are also showing up in Helena and Missoula.

Attracted by succulent edibles, especially in dry years, moose move into towns along natural drainages and linear greenways. When natural foods such as huckleberries are scarce, "bears end up in town looking for fruit, bird seed, garbage, and dog food," says Wenum.

Mountain lions, however, are after live prey. "Lions are looking for a dog, a cat, a deer, or even a person," Wenum says. "The potential for a public safety risk is very high with a lion."

Food is the big attractant for most dangerous wildlife. Each spring, FWP uses press releases, pamphlets, and TV news spots to remind citizens living in bear country that they need to pull in the bird feeders, keep garbage secure, and feed their pets inside. Residents in mountain lion territory are urged to not feed deer, which in turn attract the large cats to urban areas.

DANIEL J. COX



TOM BAUER

DANGEROUS LIAISONS Mountain lions follow deer i
on pets and pose serious threats to people. Black and
and horse feed left outside. Equally dangerous moose
divisions or hiking trails. Though wild animals can be
the wildlife themselves, who increasingly find themsel

MASLOWSKI PHOTO

HUNGRY DEER

Deer also cause major problems of their own. The beautiful and popular ungulates have now become the biggest urban wildlife issue in Montana.

"There's a veritable delicatessen of things for deer to choose from in town," says Gayle Joslin, FWP wildlife biologist in Helena. "And some people are purposely feeding them, even though there's a law against it. We've now got generations of deer that have never lived outside a city."

The hungry animals destroy flowers, shrubs, and gardens, like those of Helena resident Darlene Arnold. "I live right in the middle of town, and I've had up to 15 deer in my little condo court eating up everything and leaving my yard full of their manure," she says.

Does raise fawns in people's backyards. Bucks roam the streets and alleys like juvenile gangs. Deer are injured and killed in traffic accidents that damage vehicles and endanger human life. In 2003, roughly 300 deer were picked up as road kill in Missoula County alone. "Over the past decade or so, it's been increasing every year," says Max Bauer, general manager of BFI, Inc., a waste disposal company that picks up dead deer. Frightened deer have even been known to crash through windows into people's homes.

Deer can also become aggressive. Joslin says a few years ago a mule deer attacked an elderly Helena woman walking from her car to her front door. "The deer came up and tried to beat the daylights out of her with its front hooves," says the biologist.

Yet many Montanans like to see deer in their yards and put out cracked corn and other food to attract the graceful animals. Kate Pope, who works in the Missoula mayor's office, says even people who know deer cause problems still don't want to see the animals harmed or removed.

"That definitely puts us in a tough position," she says.

REMOVAL OPTIONS

Options for controlling urban deer are limited. Contraceptives aren't practical. "It's difficult to get a contraceptive into a doe without injuring or killing her," says Joslin. "And once you do, if that animal is shot by a hunter and the meat is consumed, you've got a food health issue."

And relocating deer is neither humane nor fair. "Aside from being hugely expensive," explains Joslin, "trap-and-transfer is just a way of sweeping the problem under the rug. Those transplanted deer, dumped out there in competition with other deer, are not going to survive, or they will just end up causing problems for someone else."

> "I get calls from people saying, 'We've got a bear problem. Come get *your* bear.'"
>
> —Erik Wenum, *FWP Bear Specialist*

The most efficient way for FWP to curb wildlife population growth is with regulared hunting. But that usually won't work in urban areas due to legal prohibitions and safety concerns. At the request of the Fort Benton City Council, FWP has in recent years used controlled, supervised public hunts on the outskirts of town, and selective shooting by department and city personnel within city limits, to remove mule deer from the growing urban population. But Fort Benton is a small town surrounded by open space. The state's larger towns and cities are more densely populated and surrounded by suburbs, making controlled hunts difficult.

Ultimately, it may be Montana residents, not Montana wildlife, who need better management. "Reducing conflicts between people and wild animals will require controls on human actions," writes David Baron in *The Beast in the Garden*, a new book on the often violent merger of wildlife and humankind. "People, especially those who live along the new frontier between

Sam Curtis is a freelance writer in Bozeman.

uburbs and rural developments, where they prey
ly bears find easy pickings in garbage, dog food,
n find traditional wildlife routes converted to sub-
erous to humans, the biggest tragedy is often to
n a collision course with human expansion.

W. STEVE SHERMAN

civilization and wildland, must accept that they are participants in the natural world, not mere observers."

Korn points out that homeowner associations could enact and enforce covenants on fencing, landscaping, garbage storage, and wildlife feeding so that wild animals would pass through residential areas without being enticed to stay.

More education, says Wenum, may be the best way for rural residents to understand their new relationship with wildlife. "We've got to instill in people a better sense of ownership and responsibility," he says. "I get a lot of calls from people saying, 'We've got a bear problem. Come get *your* bear.' They have to undetstand it's not my bear, and it's not FWP's deer. The bear and deer are just as much theirs as anyone's. And they should take some responsibility for those animals."

Existing and future legislation may also aid in solving urban wildlife issues. Wenum believes long-standing laws against feeding wildlife need to be enforced more strictly. And House Bill 249, passed by the 2003 Mon-tana legislature, will now allow towns and cities to adopt plans and use their resources "to control, remove, and restrict game animals" within city limits, with the approval of FWP.

This year, a working group of wildlife experts and city officials from around the state is meeting in Billings, Helena, and other cities to discuss ways to solve urban wildlife issues. Options include special archery hunts to cull urban deer and finding new ways to convince citizens to lessen the attractiveness of their homes to potentially troublesome wildlife.

Who will pay for increased urban wildlife management in Montana? That's another unresolved issue. Local governments have no authority to manage game animals, and they typically lack funds to reduce wildlife problems. Yet hunters don't want FWP to use their license dollars to control wildlife within city limits. That's especially true where subdivision expansion not only adds to the problem but also results in fewer hunting opportunities on what were once rural lands.

Regardless of how urban wildlife is managed, some FWP officials worry that the growing number of nuisance wildlife incidents threatens the very idea and value of wild animals and wildness.

"As a wildlife biologist," says Joslin, "I don't want to see deer in town. I don't want to see them lose their fear of people, become unwild, and then have people develop the attitude that they're some type of vermin. That demeans wildlife and lessens the importance of these species and the wild places where they live."

Montana FWP has produced a "Living with Wildlife" brochure series with tips on reducing problems caused by bears, deer, raccoons, beavers, porcupines, skunks, bats, ground squirrels, magpies, pigeons, starlings, and woodpeckers. For copies, call your nearest FWP regional office, or go to the FWP website, fwp.state.mt.us, and click the "Wild Things" icon.

PHOTO ILLUSTRATION BY LUKE DURAN

Montana's fluvial arctic grayling could be doomed if the beleaguered fish don't get more water soon

Left in the dust?

BY TOM DICKSON

The stream is hardly a trickle, maintained in midsummer only by faint underground springs. But between its narrow banks swim tiny fish that offer hope for one of the nation's most beleaguered aquatic species.

Under a blazing sun on the open, treeless steppes between the Gravelly and Snowcrest mountains in southwestern Montana, I am following Montana Fish, Wildlife & Parks fisheries biologists Jim Magee and Peter Lamothe along the serpentine headwaters of the Ruby River. The biologists are looking to see if arctic grayling reared here earlier this spring have survived.

"Here's one," says Magee, peering down into a sink-sized pool. "Here's another."

"I've got a bunch down here, four, five, six," says Lamothe, walking quickly ahead. "Ten, eleven, twelve. There's a lot."

The excited biologists move faster, as if chasing the 2-inch grayling downstream, leap-frogging past each other, calling out the number of fish they see. After half an hour, they've identified roughly 100 young-of-the-year arctic grayling, far more than they thought would survive in this sun-baked stretch of river. "This is fantastic!" says Magee.

Good news like this has been hard to come by in recent years for Magee and others working to save this unusual salmonid. As FWP's arctic grayling specialist since 1997, Magee has watched the state's dwindling fluvial (river) arctic grayling population teeter on the edge of federal endangered species listing. Over the past century, due to dams, habitat loss, competition from introduced trout species, and overfishing, Montana's fluvial grayling distribution has shrunk 96 percent from its historic range in the upper Missouri Basin. Compounding the problem has been a series of droughts, beginning in the late 1980s, that at times have reduced stretches of grayling water to bars of dry gravel.

But Magee remains hopeful. He notes several gains made in recent years—Big Hole ranchers volunteering to divert less water from the river, the first-ever documented natural reproduction of stocked fluvial arctic grayling, the restoration of streamside willows, and a budding natural incubation program that holds promise for restoration.

The grayling has long been prized for a remarkable, iridescent beauty beyond even that of the trout species. "At times the entire fish has a silvery or brassy sheen as though wearing an ancient suit of mail," wrote the great fishing author A. J. McClane,

There is no consensus among grayling advocates on how best to save this aquatic jewel. Some say the species is so close to extirpation (local extinction) it should be listed under the Endangered Species Act. Others maintain that federal listing would only drive a wedge between conservationists and the ranchers whose land borders arctic grayling waters.

Yet all agree that efforts to save arctic grayling will likely be in vain if the current drought, which has plagued the region since 1998, doesn't let up.

"If we don't get some water soon, grayling will be in real trouble," says Magee.

SHRINKING POPULATION

That's a big "if." Southwestern Montana has suffered from extreme drought for the past five years, and the below-normal snowpack in the Beaverhead, Pioneer, and Blacktail mountains this past winter will likely limit stream flows in 2004.

Grayling in Montana have never had it

TOM DICKSON

DOWN HERE SOMEWHERE On the upper Ruby River, FWP biologists Peter Lamothe (in snorkeling gear) and Jim Magee search for grayling tagged with radio transmitters.

easy. They are primarily a fish of the far, frigid north—Alaska, Canada, and northern Europe and Russia. Historically, the only populations in the lower 48 states were in Michigan and in Montana's upper Missouri headwaters. Michigan's populations disappeared in the late 1930s due to deforestation and overfishing. Having evolved in the arctic, where food is scarce, the grayling attacks prey with abandon and is easy prey for anglers. Wrote Izaak Walton, "He will rise twenty times at a fly, if you miss him, and yet rise again."

By the late 1970s, the only remaining fluvial grayling in Montana swam in the Big Hole River. Those in the Ruby, Sun, and other upper Missouri rivers had died out due to dams (which prevent the fish from migrating), siltation (which smothers eggs) from logging and cattle grazing, competition from introduced species, and global climate change.

According to Chris Thomas, a professor of conservation biology at England's Leeds University and an expert on global warming and species extinction, a link between rising global temperatures over the past century and declining populations of sensitive cold-weather species such as arctic grayling seems likely.

> "Grayling have disappeared from those rivers for a reason."
>
> Jim Magee,
> *Montana FWP Grayling Specialist*

"Although the entire arctic grayling species may not be at risk of extinction worldwide, it can be expected to disappear from large parts of its distribution as conditions get too hot or dry due to climate warming," Thomas says.

That became apparent in Montana during the drought of 1988, when the Big Hole ran so low that some upper reaches went dry. Grayling numbers plummeted, from an average of 100 per mile to just 22 per mile.

In response, FWP restricted grayling angling on the Big Hole to catch-and-release only. It also established a working group of state and federal biologists and private interests who developed an arctic grayling restoration plan to protect and enhance the fast-disappearing population.

But the plan didn't go far enough for some grayling advocates. In the early 1990s, citing the plan's inadequacy, two environmental groups petitioned to have the grayling listed for protection under the Endangered Species Act. The U.S. Fish and Wildlife Service agreed the grayling was in danger but categorized it as "warranted but precluded." That meant the species warranted federal protection but was precluded from listing because Montana had a restoration plan in place. To forestall ESA listing, FWP agreed to continue grayling conservation work it had begun on the Big Hole and to restore grayling populations on other rivers.

Conserving grayling on the Big Hole requires protecting and restoring coldwater habitat—deep pools, clean spawning gravel, and, especially, an abundant supply of cold water. The river flows in a 150-mile arc, bearing north from its headwaters on the Idaho border then eastward to meet the Beaverhead and Ruby rivers at Twin Bridges to form the Jefferson. For much of its length, the Big Hole Valley is at an elevation over 5,000 feet, where melting snowpack in surrounding mountains feeds the

Tom Dickson is editor of Montana Outdoors.

CHUCK HONEY

PAUL F. UPDIKE

CHUCK AND GALE ROBBINS

SPLENDID SPECIES "The French value grayling so highly," wrote Izaak Walton, "they say he feeds on gold." Though it actually feeds on aquatic insects, the grayling is no less prized in Montana, especially among anglers who value its beauty. In the Big Hole Valley, the elegant fish competes with irrigated hay fields for limited water. Rather than let courts determine winners and losers, ranchers, scientists, and anglers have been meeting to find ways to provide enough water for both cattle and grayling.

river through spring and much of the summer, keeping river temperatures cool.

Though it looks as lush as the Irish countryside, the Big Hole Valley actually sits in a semi-arid sagebrush benchland, where rain falls infrequently. When irrigated, however, the valley greens up and produces abundant hay, the area's economic lifeblood for the past 100 years.

What's good for cattle feed, however, is often not good for salmonids. Every gallon of water diverted onto fields for grass or grazing pasture is one less gallon available for grayling. Recognizing that their cows and a potentially endangered fish species share the Big Hole River's finite water supply, local ranchers joined with outfitters, government agencies, and conservation organizations such as Trout Unlimited to form the Big Hole Watershed Committee in 1995. The consensus-based group formulated a plan for keeping river flows at or above the minimum level necessary to maintain streambed habitat as determined by FWP studies. Below a certain point, members agreed, low water flows would trigger mandatory restrictions by anglers and voluntary water conservation efforts by ranchers.

"Many of these ranchers have given up significant amounts of water," says Randy Gazda, a U.S. Fish and Wildlife Service biologist at Dillon who works with Big Hole landowners to enhance grayling habitat.

Using state and federal funds, 20 cattle watering wells have been drilled in recent years to help ranchers conserve river water. Other habitat conservation work in the watershed includes improving grayling habitat on tributaries and restoring riparian (riverside) areas. On the banks of a 1.5-mile stretch of Steel Creek, a Big Hole tributary, willows were planted in 2003 to shade the river and reduce stream bank erosion. New fencing is protecting the young willows from grazing cattle. In April 2004, a previously channelized 800-foot stretch of Fishtrap Creek was reconfigured to create pools, riffles, and other in-stream habitat.

FIVE ADDITIONAL POPULATIONS

Despite such progress on the Big Hole, arctic grayling are still at risk if new populations aren't established in other rivers. "The Big Hole makes up only about 4 percent of the historic grayling range in Montana," says Magee. "Even if we completely restore that population, the species will be vulnerable to extinction and could still be listed under the ESA."

That's why the USFWS has also asked Montana to reestablish fluvial arctic grayling populations within historic drainages in the Ruby River, the North and South forks of the Sun River, the lower Beaverhead, and the Missouri River headwaters (which includes the lower Gallatin, Jefferson, and Madison rivers, and the mainstem Missouri River to Toston).

"Grayling disappeared from those rivers for a reason," says Magee. Biologists working on several research projects over the past decade have been working to better understand why. One study found that grayling don't spend enough time feeding when forced to chase exotic rainbow trout from prime holding lies. Another found that removing streamside vegetation on the Big Hole resulted in fewer deep pools and holding lies. An ongoing study is following radio-tagged grayling in the Big Hole and Ruby to track their movements and understand what types of habitat they use.

The restoration effort also focuses on rearing grayling for stocking. Fertilized eggs from Big Hole–strain brood stock kept in brood lakes and the USFWS Bozeman Fish

JEFF HENRY

LIZ LEWIS

JEFF HENRY

MANY QUESTIONS To learn more about Big Hole grayling, FWP biologists monitor the population each year to see how numbers respond to water flow and temperature. To successfully restore grayling in other rivers, scientists are working to understand exactly how dams, siltation from logging and cattle grazing, competition from other species, overfishing, and global climate change caused the species to disappear.

Technical Center are reared in state hatcheries to roughly 8 inches before being stocked. Most of the restoration rivers have been stocked intermittently since 1997, with varying degrees of success. The best results have been on the upper Ruby, where, in 2000, stocked fluvial grayling reproduced for the first time.

FWP biologists are now conducting an experiment to learn if young grayling survive better when early development takes place in the river. Fertilized eggs taken from brood stock are placed in "remote site incubators"—porous 5-gallon buckets containing gravel set into the upper Ruby and several tributaries. After 18 days, the mosquito-sized fry are released into the stream to fend for themselves.

"The idea is that these young grayling will be wilder and heartier, and that they will imprint on the feeder stream and return there to spawn," says Magee.

DIFFERENT MEANS

Montana grayling numbers continue to remain low, despite progress with ranchers and research, causing some grayling advocates to again call for federal regulation. In 2003, two environmental groups sued the USFWS for failing to list the fluvial arctic grayling as an endangered species. In their argument for listing, the Center for Biological Diversity and the Western Watersheds Project argued the voluntary irrigation restrictions were not protecting sufficient water in the Big Hole and that FWP had not established self-sustaining populations on other rivers.

"This is a crisis situation," says Jon Marvel, executive director of the Western Watersheds Project. "The lethargic process developed by FWP and the USFWS is turning into a death sentence for grayling."

FWP officials and Big Hole Watershed Committee members maintain that the restoration plan is working. They point out that voluntary restrictions have kept the Big Hole from drying up in recent years, as happened in some reaches in 1988.

"The ESA mainly affects federal land and activities, but the Big Hole runs through private land," says Magee, "For grayling restoration to work over the long haul, we need the cooperation of the ranchers."

But Marvel disagrees, maintaining that at some point the ESA is the best way to ensure endangered salmonids get the water they need to survive. "We've successfully sued individual water rights holders in Idaho and now have water back in streams where endangered salmonids swim where it hadn't been in 85 years," he says.

The decision whether to list the grayling rests with the USFWS. According to Lori Nordstrom, a federal biologist in Helena who works on ESA issues, the plaintiffs and the federal government are now filing and responding to briefs. Later this year, a federal circuit court judge in Washington, D.C., will likely decide whether to hold a hearing on the case or dismiss it.

Back at the Ruby River headwaters, I follow the biologists to the truck, pausing momentarily to look back at the tiny tributary. In this parched landscape, it seems to me improbable that such a fragile wisp of water could play a part in saving Montana's struggling arctic grayling population. Magee, however, won't be put off by my skeptical observations.

"You wait for years to see something like this, to see juveniles in here," he says as we climb into the truck. "What we saw on this tributary today is real encouraging." Then he glances up at the sky, where the sun has been beating down all afternoon, and adds, "Let's just hope it doesn't dry up on us."

Rattlesnake!

What to do if you or someone you are with gets bitten

MONTANA FWP/MONTANA OUTDOORS

By Walt Timmerman

Of the ten snake species that live in Montana, only the prairie rattlesnake is venomous. Also known as the western rattlesnake, the prairie rattler is found in open, arid country and ponderosa pine savannahs. It often dens on south-facing slopes in areas with rock outcrops.

Rattlesnake bites are extremely rare. Of the hundreds of thousands of hunters, hikers, and backpackers traversing Montana each year, only five or six report being bitten, according to the Rocky Mountain Poison and Drug Center in Denver. The center also notes there was not a single death among the 45 reported prairie rattlesnake bites in Montana during the last eight years.

The prairie rattlesnake is a medium-sized species with venom glands that harbor only moderate amounts of venom. I have talked to many people whose pet dogs and even pet cats have survived bites by this snake.

Nevertheless, prairie rattlesnakes have the ability to deliver a dose of venom lethal to an adult human. That's why anyone who spends time outdoors in Montana should have at least a passing awareness of snakebite first aid.

Rattlesnakes are shy, retiring creatures. If left alone, they won't bother people. But if a rattlesnake thinks it will be stepped on or otherwise harmed, it may bite. These snakes are armed with a pair of hollow, hinged fangs that fold back against the roof of the mouth. A rattlesnake strikes most often on the hand, calf, or ankle, leaving one or two small fang marks. When bitten, a person will likely feel intense pain at the bite area. Other symptoms may include difficulty breathing, nausea, vomiting, swelling, and gangrene. Though it's rare these days for someone to die of snakebite, it does happen. No wonder that in the panic that follows a snakebite, victims may consider bizarre remedies. These questionable measures, still repeated by Uncle Al at the annual family picnic, include treatment with ice or electric shock, the use of tourniquets to cut off blood circulation, and cutting and sucking the wound.

None of these homespun treatments are recommended by snakebite experts, and some may cause even more harm than the snakebite itself. For example, cutting a victim can cause severe pain, massive bleeding, and infection; tourniquets can cut off blood supply to the extent that gangrene sets in.

I'm not a physician, nor am I licensed to dispense medical advice, but the following simple first-aid steps are recommended by snakebite experts:

- **Get professional medical care** as soon as possible after any venomous snakebite. If a phone is nearby, call 911 and request help. Try to get the victim to a hospital within three hours (though a snakebite victim should not run).

The victim should be kept calm, and exertion should be avoided. Physical activity increases absorption of the venom.

- **Immediately remove rings,** bracelets, and other constricting jewelry or clothing.
- **Immobilize the bitten limb** with a splint or sling (applied loosely so circulation is not cut off) and keep it lower than heart level.
- **Walk the victim** at a steady but relatively slow pace back to a vehicle, or to a place where an ambulance or helicopter can be met. Keep the victim's heart rate as low as possible to slow the spread of the venom. If possible, use a horse, ATV, or litter to carry the victim.

Years ago, the antivenom used for snakebite often caused hives or, in extreme cases, deadly anaphylactic shock. But times have changed. Clinical trials of the antivenom now used by medical professionals have demonstrated it to be as effective as the old brand but much safer. Only trained professionals should administer antivenom.

To keep from getting bitten in rattlesnake country, wear leather boots and keep your hands away from rocky ledges, wood piles, brush, or other places rattlesnakes frequent. Carry a cell phone so you can call 911 immediately. Before heading out, review the first-aid steps listed above.

Rattlesnakes play an important role in the balance of nature. Each year they consume millions of rodents, which can become agricultural pests and spread disease such as hantavirus. Unless a rattlesnake has invaded your backyard and poses an immediate threat to you, your family, or your pets, don't kill it. Enjoy watching this fascinating snake from a distance and let it be.

For more information on snakebite prevention and care, consult the U.S. Food and Drug Administration website: www.fda.gov/fdac/features/995_snakes.html.

Walt Timmerman, chief of the FWP Parks Division Recreation Bureau, worked in Florida for the legendary herpetologist, Ross Allen, handling live rattlesnakes for educational programs. He has been bitten only twice by venomous snakes—once by an Egyptian cobra, a "dry" (venomless) bite, and once by a cottonmouth, which sent him to the hospital for three weeks.

What's Up Down There?

Finding fish in "fishless" prairie streams

By Dwayne Andrews

It's early morning on a warm June day as Brad Tribby, Margo Taylor, Mike King, and I head to Birney, a small town in southeastern Montana near the Tongue River Reservoir.

The pickup sends out a plume of gravel dust as we make our way to Hanging Woman Creek, about 35 miles north of the Wyoming border. Our mission is to verify a piece of a puzzle that has been perplexing state fisheries biologists for a long time. They know this stream has flowing water, which in southeastern Montana can be a rare thing, and that it supports several fish species. But the stream hasn't been surveyed in years, and no one knows exactly what's in the water now.

The excitement grows as we near the stream and begin unloading our survey gear. Working upstream from the bridge near Birney, we wade into the creek, two of us holding 5-foot-long poles between which extends a 30-foot-wide seining net submerged in the water. Slowly we begin to work our way up the creek, stopping as the net fills with fish to pull it to a bank and transfer them into buckets of fresh water. Under the blazing sun, sweat drips down our backs as we struggle to pull our legs from the mucky stream bottom and wade upstream.

After several sweeps of the seining net, covering roughly 300 yards of stream, we have collected hundreds of fish of all sizes. On the final sweep, the net sags under the weight of what seems to be a massive creature. Is it an errant paddlefish that swam up from the Yellowstone River? A monster catfish or carp? Our hearts race as we reach down into the cloudy water and pull up a none-too-happy snapping turtle. Though it's no easy chore removing a grumpy turtle from a net while its jaws snap near our fingers, we finally get the big reptile back into the stream, unhappy but unharmed.

We climb onto the stream bank and begin to identify, measure, and release what turns out to be a treasure trove of warmwater fish. In a stream that, to many, appears empty of life, we find smallmouth bass, black crappies, white suckers, river carpsuckers, common carp, channel catfish, bluegills, pumpkinseeds, green sunfish, black bullheads, and various tiny fish, which (after consulting our fish guide) we identify as fathead minnows, golden shiners, and emerald shiners.

"It's amazing how diverse the fish species are in warmwater streams," says Tribby.

In stream surveys across eastern Montana, other crews found similar smorgasbords of warmwater fish life. In theory, many crews should not have found anything. Several thousand miles of eastern Montana streams previously had been labeled as "fishless," but only because no one had ever taken a look. According to Ken McDonald, chief of the FWP Fisheries Division's Special Projects Bureau, the department completed a comprehensive search of its fisheries database in 2001 and found that more than 18,000 miles of mapped prairie streams in the eastern half of Montana had never been surveyed. Biologists knew what lived in the major rivers such as the Tongue and the Yellowstone, but not in most small prairie streams that crisscross the region.

The survey crews were hired with funds from the federal State Wildlife Grants Program (SWG) to survey eastern Montana prairie streams in 2003 and '04. Last year's discovery of 46 different species (26 of them native) among the various streams surprised even veteran fisheries biologists.

"We had no idea that some of these streams would be so biologically rich," says Brad Schmitz, FWP southeastern region fisheries manager in Miles City. "Compared to cold-water streams, which have just a few different fish species, prairie streams are hugely diverse."

Why does FWP care what's in

FISH ILLUSTRATIONS BY JOSEPH TOMELLERI

WARMWATER SMORGASBORD Last summer, survey crews found 46 fish species in prairie streams, some previously designated as "fishless."

Dwayne Andrews is an FWP information officer at Miles City.

the state's prairie streams? Data collected from the surveys will be used by the department to help develop a comprehensive prairie fish and wildlife plan that outlines the status and needs of prairie species and ecosystems.

"We really don't have much information about the prairie streams in eastern Montana," says Schmitz. "We inventoried some of them 30 years ago but haven't had the funds to do anything else."

The surveys will also help FWP and other agencies as they review land-use proposals such as highway construction that could affect the streams and aquatic life. There's no way to know what harm—or benefit—development might have on prairie stream life in the future until industries, landowners, FWP, and other public agencies know what's living there now.

What's more, the surveys offer a rare glimpse into Montana's prairie past. "Many of the surveyed streams have intact native fish communities that haven't been ruined by introduced species such as northern pike," says McDonald. "These streams are the same as what American Indians and explorers saw 200 or more years ago."

The SWG funding allowed FWP to hire seasonal employees and buy seines, waders, GPS units, and other survey gear. The crews traveled across large expanses of eastern Montana to survey prairie streams. By summer's end, 299 sites had been surveyed.

On some surveys sites, crews found little or no water in the stream course. Other sites had deep pools and strong currents. At every site, crews measured the depth and width of the water and examined the stream bottom to see if it was mostly gravel, muck, or other matetial.

The exact position of each site was recorded with a GPS unit so it could be located in the future. Crews also measured water temperature, dissolved oxygen, salinity, and pH. Fish not positively identified or those requiring additional analysis were sent to Bob Bramblett, a Montana State University scientist.

Most of the streams, randomly selected by computer, coursed through private land. Crew leaders discussed the survey with property owners and got permission to cross private land to reach selected sites. When the field surveys were finished, landowners received copies of the findings. Schmitz says landowners appreciate knowing more about the environment they live in, including the types of fish swimming in prairie streams running through their property.

On Hanging Woman Creek, we finish identifying and measuring the fish before returning them to the stream. The catfish and bullheads have sharp spines that require careful handling. And the minnows are so small and slippery we have a hard time picking up the little fish from the measuring board before releasing them back into the stream.

What good are all these fish our survey crew and others have found? Some have value as food for sport species, such as sauger, walleye, and northern pike, or as prey for herons, kingfishers, mink, and other wildlife. Some are indicator species that provide clues to the health of a stream and its surrounding watershed. And some are big enough to lure young anglers to the streams, where they will learn about the natural world while wetting a line. There also may be values to prairie stream fish not yet understood.

What is now known, however, is that these inhabitants of Montana's prairie streams are far more abundant and diverse than anyone imagined.

Why Montana Went Wild

Montana Outdoors interviews the scientist whose research three decades ago helped revolutionize trout management

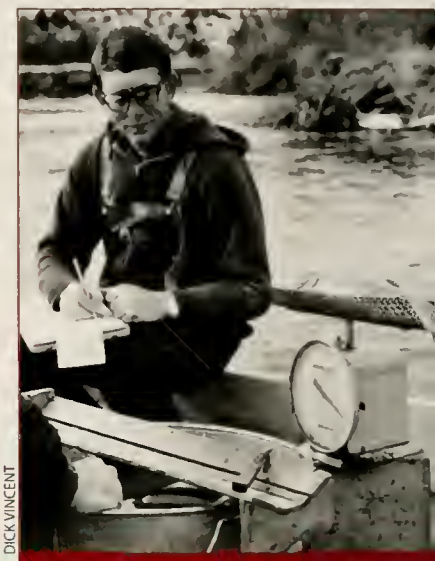
In 1974, Montana did something that stunned anglers across the state and the nation: It stopped stocking trout in streams and rivers that supported wild trout populations.

The move initially outraged many anglers, fishing businesses, and even some Montana Fish and Game Department staff. For decades, hatcheries had been credited with producing more and better fishing. Without stocking, many Montanans asked, what would happen to the state's famous trout waters and the businesses that relied on legions of anglers arriving from across the country each summer?

The answer, now well known, is that trout fishing improved dramatically. Once stocking was discontinued, wild trout numbers doubled, tripled, and more on many rivers.

On this 30th anniversary of Montana's discontinuation of stocking trout in rivers capable of sustaining wild trout, *Montana Outdoors* visited with fisheries biologist Dick Vincent, whose research on the Madison River in the late 1960s and early '70s led to that decision.

A Montana native who grew up in Norris and Garrison fishing the Madison and Clark Fork rivers, Vincent earned his B.S. and M.S. in biology at Montana State University and began working for the department in 1966. Nationally known in recent years for his studies on whirling disease, particularly on the Madison River, three decades ago Vincent and his crew showed that wild trout thrived in river reaches without stocked fish and suffered in heavily stocked stretches. It was research that was to revolutionize trout management in Montana and throughout the United States.



DICK VINCENT

TROUT SLEUTH In the early 1970s, Vincent conducted a study to see if stocking was harming river fisheries. In recent years, the renowned researcher has been studying whirling disease on Montana rivers.

How did you get started looking at the effects of stocked trout on wild trout?

Actually, I was first hired by the department to develop new techniques for monitoring trout populations. Back then we didn't have accurate ways to track trout numbers. I helped develop new electroshocking equipment and techniques so we could sample a lot of fish and larger fish.

That's how you got started working on the Madison River?

Right. Once we developed the techniques, we started trying them out on rivers. We picked two stretches of the Madison—the Norris stretch, downstream of Ennis Lake, and the Varney Bridge stretch, about six miles upstream from Ennis—and started doing population monitoring. In 1968, we were able to convince the power company operating the two dams upstream to increase river flows. We began studying the effects of the increased flows on the Norris and Varney sections, figuring that both stretches would benefit. But that wasn't the case. The flows helped the Norris section, resulting in better recruitment and many more 10-inch-plus fish, but not Varney.

So you started looking for other factors?

We were so puzzled, because at the time we were sure flows were the big issue, and it didn't make sense that one stretch of the Madison was responding to improved flows and another wasn't. I made a list to see what was similar and different about the stretches. The big factor that jumped out was that the Norris area wasn't stocked at all, but Varney was stocked with anywhere from 10,000 to 15,000 catchable trout per year. We asked ourselves: Could it be the stocking? We had no idea, but we wanted to find out.

That's when the famous study began?

Well, it didn't happen that easily. This was in 1969, and what we proposed was to not stock the Varney section for three years while stocking a tributary named O'Dell Creek, which was never stocked before but had some good trout numbers. We wanted to leave the Norris stretch alone and use it as a control.

Some people didn't think highly of your proposal, correct?

That's putting it mildly. I think people thought we had a goal of closing down all stocking, but that wasn't the case. We specifically wanted to learn if stocking catchable-sized rainbow trout was negatively affecting wild rainbow and brown trout populations. But Ennis businesses, the Fish and Game Commission, and lots of anglers didn't like the idea of us messing around with stocking in any way. They felt that the Varney stretch would crash during the three-year study. I heard many people say, "If we don't have stockers, what will fishermen catch?"

How heavily was Montana into stocking fish at the time?

That was really the peak of our river stocking program. We were stocking the Big Hole, Yellowstone, Gallatin, Madison—all the best rivers, which already had great trout fisheries—with an average of 2,000 catchable trout per mile. But the department was still getting complaints about how poor the fishing was, that it was getting worse each year. So the solution was to stock even more, and whoever hollered the loudest got the most fish in their favorite stretch of river.

The idea then was that the stocked fish were an addition to the wild populations, that two plus two equaled four. But a few of us biologists wondered if maybe two plus two equaled three or even less.

Were you the only ones suspecting this?

Some anglers had a hunch that river stocking wasn't all it was made out to be. Bud Lilly, Dick McGuire, Tom Morgan, and a few others had been fishing these great rivers before the big stocking boom, and they told us the fishing was getting increasingly worse. And I'd seen that myself, having grown up fishing the Madison in the 1950s, when we'd catch 3-pounders. Then, in the 1960s, all we could catch were small hatchery fish. But no one knew why the fishing got worse on those rivers.

MONTANA OUTDOORS

How did the study start?

First we had to get permission from the commission to not stock the Varney section for three years. That was a big deal. Art Whitney, the fisheries chief, made the case that we weren't out to end stocking but that we just wanted to learn something. That took courage. He could have made his life a lot simpler by not going against the flow. But Art was a scientist, and he successfully fought for the study.

The three-year study actually began in 1970, but it included information for the years 1967–69. After just one year, we could see that the four-mile-long Varney section was improving by no longer being stocked and that most of the improvement was in the larger fish. By the fall of 1971, wild trout numbers had increased 153 percent from the 1967–69 average, from 1,500 trout to 3,800 trout. The improvement continued every year. By 1974 the total number of wild trout larger than 10 inches was 4,700, a 213 percent increase from the stocking years.

What happened to O'Dell, the creek you began stocking?

The wild trout population began declining. The 1967–69 average had been 515 brown trout in that 1.4-mile stretch, and it dropped to 380 in 1971 and then 280 in 1972. And the big fish numbers declined as well, dropping from 63 in 1967–69 to 14 in 1972.

Were you surprised by the results?

We'd suspected that stocking was having a negative effect, but when we saw large trout numbers in the Varney section triple and trout numbers in O'Dell cut in half, well, that just blew us away.

And that caused the agency to rethink its river stocking policy?

River stocking was already under some criticism because the return to the angler was so low. Within three months of being planted, 95 percent of stocked river trout are dead, either from being caught and kept by anglers, about 15 percent, or from other predators, about 80 percent. It's not cheap to raise fish to catchable size, and when anglers are only catching 15 percent of the stocked fish, those become pretty expensive trout. In 1972, the department figured that each hatchery-reared catchable trout caught by an angler in the upper Madison River cost about $2.50. And that was back in 1972, when a fishing license cost about that much. It just didn't make sense.

The study then added weight to arguments against river and stream stocking?

Now there were two strikes against it: One, the department was raising all those fish with little return to the angler and, two, stocking was harming wild fish. Ordinarily you wouldn't change management policy based on just three years of data, but the numbers from the study were off the charts.

The department had to decide what to do, but there was a huge fear that ending stocking would cause an economic disaster for the communities along the rivers. There were a bunch of hearings on changing the policy. But by the end of 1973, the department and the commission agreed that it didn't make sense. The following year, the department stopped stocking trout in rivers and streams.

What happened then?

Wild trout numbers increased, just as the study said they would. For example, in the upper Gallatin above Big Sky, trout numbers went from about 450 wild fish per mile to 2,500 once stocking ended. And after the department stopped stocking O'Dell Creek, the numbers went right back up to where they had been.

Did other states follow?

To a point, yes. We got calls from all over the country from fisheries departments and trout anglers. There was a ripple effect across the United States.

Some people thought the new policy would be the end of the hatchery system. But that didn't happen.

Not at all. In fact the department is now rearing and planting eight million trout per year. But instead of stocking rivers and streams, it plants lakes and reservoirs. And instead of stocking catchable-sized fish, the stocking has shifted to smaller trout that grow to be catchable size but have wilder traits. The hatchery program now is critical for lake management and also for helping propagate species of concern such as westslope cutthroat. It's really doing a great job.

Other than producing better wild trout fishing, what other effects did the study have?

I think the biggest thing was that people began to see wild trout as a valuable, limited resource, and that the state needs to protect habitat to conserve that resource. Back in the 1960s, anglers didn't care about stream flows and river habitat, because if the fishing was poor, you just tossed in more fish. But if you want to catch big wild fish, then you need to fight for water and for habitat, and that is what has happened. I don't know of a state where people have fought as hard for their rivers as they have here in Montana.

MAY

1 Tough Guy Fishing Tournament, *Hell Creek State Park, 7 a.m.* Two-person team walleye tournament. (406) 232-0926.

15 Rededication Ceremony, *Missouri Headwaters State Park, all day.* Celebrate this much-improved site of Lewis and Clark's expedition goal. Guided tours, free lunch buffet, and historical re-enactments. (406) 994-6934.

28 Friday Morning Interpretive Walks, *Giant Springs State Park, 8:30 a.m.* Native plants, Missouri River Valley, Lewis and Clark, and more. (406) 454-5858.

28 Interpretation at Rainbow Falls, *Giant Springs State Park, 1 p.m.* History of the upper overlook. (406) 454-5858.

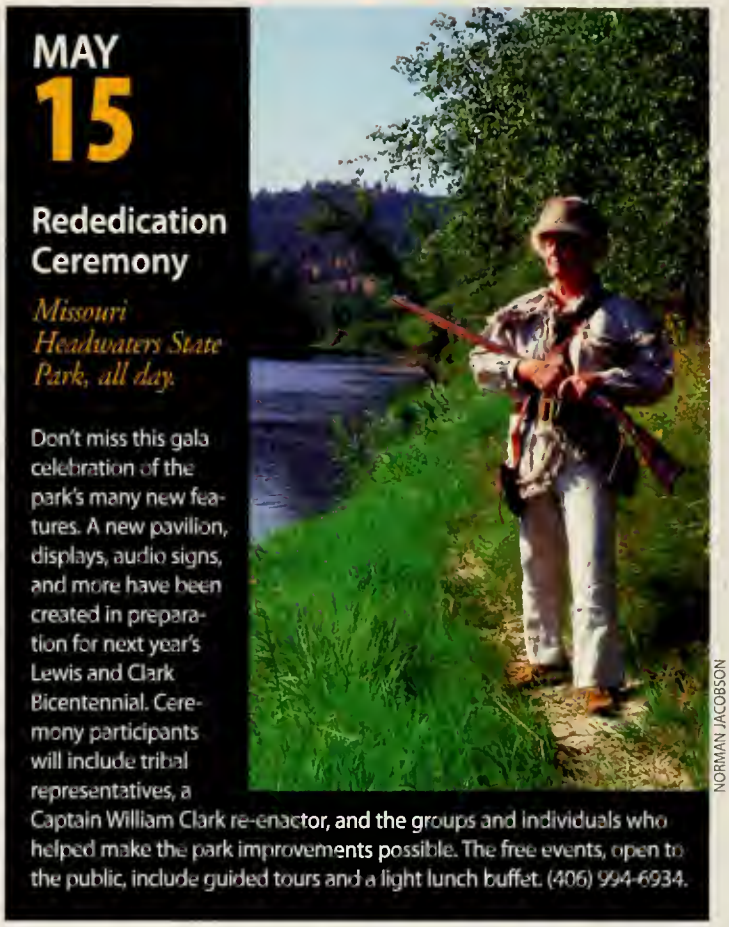
29 High Country Harmony, *Bannack State Park, 7 p.m.* A mix of cowboy, folk, and gospel songs. (406) 834-3413.

29 Great Falls of the Missouri River, *Giant Springs State Park, 1 p.m.* History of the waterfalls. (406) 454-5858.

JUNE

2, 9, 16, 23, 30 Wednesdays at Giant Springs, *Giant Springs State Park, 12 p.m.* American bison, the Lewis and Clark Expedition, cottonwoods, Pompeys Pillar, and more. (406) 454-5858.

4, 11, 18, 25 Friday Morning Interpretive Walks, *Giant Springs State Park, 8:30 a.m.* Native plants and wildlife, the Missouri River Valley, the Lewis and Clark Expedition, and more. (406) 454-5858.


MAY
15
Rededication Ceremony
Missouri Headwaters State Park, all day.
Don't miss this gala celebration of the park's many new features. A new pavilion, displays, audio signs, and more have been created in preparation for next year's Lewis and Clark Bicentennial. Ceremony participants will include tribal representatives, a Captain William Clark re-enactor, and the groups and individuals who helped make the park improvements possible. The free events, open to the public, include guided tours and a light lunch buffet. (406) 994-6934.
NORMAN JACOBSON

4, 11, 18, 25 Interpretation at Rainbow Falls, *Giant Springs State Park, 1 p.m.* Spend a Friday afternoon learning about Rainbow Falls. (406) 454-5858.

5 Wild about Bats, *Bannack State Park, 1 p.m.* An overview and lecture about these fascinating creatures of the night. (406) 834-3413.

5, 12, 19, 26 North Shore Interpretive Hikes, *Giant Springs State Park, 9 a.m.* Native plants, Missouri River Valley, Lewis and Clark, and more. (406) 454-5858.

8, 15, 22, 29 Discovery Days Series, *Spring Meadow Lake State Park, 7 p.m.* Special interactive programs for kids on Helena-area natural and historical resources. (406) 495-3270.

11 Hazards and Obstacles, *Lewis and Clark Caverns State Park, 8 p.m.* Learn about the myriad challenges faced and overcome by the Lewis and Clark Expedition. (406) 287-3541.

12 Buzzard Day, *Makoshika State Park, all day.* Celebrate the annual return of turkey vultures to the park with games, food, and family fun. (406) 377-6256.

12 Musical performance, *Missouri Headwaters State Park, 7 p.m.* Jack Gladstone weaves Blackfeet mythology and storytelling. (406) 994-6934.

12, 19, 26 Uncover Montana Series, *Travelers' Rest State Park, 8 p.m.* Fascinating lectures on Salish Indian culture, glacial Lake Missoula, Lewis and Clark interpretation, local natural history, and more. (406) 273-4253.

13 Lewis at the Great Falls, *Giant Springs State Park, 12 p.m.* Interpretive program on Captain Lewis's arrival at the famous waterfalls. (406) 454-5858.

14 Freedom of York, *Giant Springs State Park, 7 p.m.* A special Flag Day presentation on the life of the African-American slave who accompanied Lewis and Clark. (406) 454-5858.

18,19 The Rest of the Stories, *Lewis and Clark Caverns State Park, 8 p.m.* What you never knew about the Lewis and Clark Expedition, by historian Hal Stearns. (406) 287-3541.

19, 26 Summer Speaker Series, *Missouri Headwaters State Park, 7 p.m.* Ethnobotany, music, history of the American West, and more, with marshmallow roasts. (406) 994-6934.

24 Trapping and Trading Series, *Giant Springs State Park, 8 p.m.* Presentations on historic trade on the upper Missouri River. (406) 454-5858.

26 "My Sweetheart's a Mule in the Mine," *Bannack State Park, 7 p.m.* Colorful songs and tales of Montana's historic mining era. (406) 834-3413.

26, 27 Lewis and Clark and Plains Indians Encampment, *Giant Springs State Park, 10 a.m.–5 p.m.* Early European contact with Indian culture. (406) 454-5858.

MONTANA FISH, WILDLIFE & PARKS FOUNDATION

Providing private support for critical Montana Fish, Wildlife & Parks efforts and helping to preserve and enhance Montana's natural, cultural, and recreational resources. To learn more, visit us at fwp.state.mt.us/foundation, or call (406) 444-6759.

Moose
(Alces alces)

MOOSE MAKE IT EASY for people to become enamored with them. They are graceful, stately, and approachable, often ignoring onlookers who don't venture too close.

But the moose is not just another pretty face. What looks like an unlikely cross between a horse and a hippopotamus is actually an exceptionally well-constructed animal. Its bulbous muzzle contains large nostrils that provide an excellent sense of smell, and the moose can actually use its prehensile upper lip to grasp vegetation. Its exceptionally large ears can be moved independently of each another, providing the moose with extremely sensitive hearing and the ability to determine sound direction. The eyes, too, move independently, allowing the moose to see in two directions at once.

The body color varies from brown to the near-black of adult bulls. This dark coloration makes it difficult to spot a moose in the forest shadows. Though its long legs may seem ungainly, they allow a moose to easily carry its 700- to 800-pound body through snow and swamps and over downed trees. And the moose can splay its huge feet to add support when wading through deep snow.

RANGE: Moose are found throughout the world in northern climates. Four subspecies live in North America and three in Eurasia. Montana is home to the smallest subspecies, *A. a. shirasi*, which is also found in several other western states, southern Alberta, and southeastern British Columbia.

According to Jerry Brown, FWP wildlife biologist in Libby, moose occur across much of the mountainous portion of Montana and are gradually expanding into previously unoccupied locations, including some areas east of the Continental Divide.

HABITAT: The adaptable moose inhabits a wide variety of habitat types. The basic requirements are abundant food and protective cover. Moose browse on the leaves and twigs of deciduous trees and shrubs. They frequently feed in timber cuts, burns, and other open, disturbed areas where new vegetation is more abundant and nutritious than what grows under shaded tree canopy. Willow is a moose favorite, and in some areas the large mammal wades into lakes and ponds to feed on aquatic plants during summer.

Though their large bodies, thick hide, and dense hair protect them from cold, the animals overheat easily. When temperatures rise above 23 degrees Fahrenheit in winter and 57 degrees in summer, moose can suffer from heat stress. To beat the heat, moose move to cool, heavy cover on north-facing slopes or to damp areas. Often in summer, you can find moose standing in ponds and streams trying to cool off. When all else fails, they will open their mouth and pant like a dog to rid their bodies of excess heat.

Though moose are able to wade through powder snow 5 feet deep or more, the extra energy needed to move through wet snow deeper than even 2 feet sends the animal to conifer groves, where there is less snow. Moose will also migrate to lower elevations where snow is not so deep.

DANGER TO HUMANS: Moose usually are not aggressive unless approached too closely. Cows with calves can be especially dangerous. Usually an attacking moose will make a short rush, which usually gets the point across, but occasionally it will make an all-out attack, striking with its powerful hooves. A moose can seriously injure or even kill a human. Sometimes the animal will attack as soon as it is surprised, but usually it will give a warning signal—ears laid back against the head and, even more ominous, hair standing up on the back of its neck—before attacking. Ignore these at your peril.

MORTALITY: Moose are big and powerful, but not invincible. Wolves, cougars, and grizzly bears kill moose. Black bears often prey on newborn calves. Vehicles also take their toll. Dark moose can be difficult to see against a dark road at night.

Some parasite infestations can lead to moose mortality. Winter ticks are common on moose and, in small numbers, cause no problem. However, heavy infestations of 40,000 to 50,000 ticks per moose result in considerable hair loss as the animal tries to rid itself of the parasites. Fat reserves become depleted due to the loss of insulation against cold, the increased energy expended in grooming to remove ticks, and a subsequent decrease in time spent feeding. Blood loss to such great numbers of ticks can result in anemia.

MANAGEMENT: Brown says Montana FWP biologists conduct aerial surveys in major moose population areas to keep tabs on moose numbers. The department issues limited numbers of bull, antlerless, and either-sex hunting permits through a random drawing. Roughly 600 moose are shot by hunters in Montana each year.

BY BILL PETERSON
A northern Minnesota wildlife biologist until he retired in 2000, Bill Peterson now lives near Troy.

ROCK ON!

Photographer Steven Gnam used speed, balance, and a camera timer to take this self-portrait while hopping rocks in the Jewel Basin Hiking Area. Located a few miles northeast of Bigfork, the 15,350-acre hiking area contains 35 miles of trails interlaced among 26 alpine lakes. Jewel Basin is part of Montana's 15,000-mile trail system, which provides routes for hiking, backpacking, mountain biking, horseback riding, cross-country skiing, snowmobiling, and more. Find your own special trail in our story beginning on page 6.

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